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SFRA Review is an open access journal published four times a year by the Science Fiction Research Association (SFRA) since 1971. *SFRA Review* publishes scholarly articles and reviews. As the flagship journal of SFRA, the *Review* is devoted to surveying the contemporary field of SF scholarship, fiction, and media as it develops.

Submissions

SFRA Review accepts original scholarly articles, interviews, review essays, and individual reviews of recent scholarship, fiction, and media germane to SF studies. Articles are single-blind peer reviewed by two of three general editors before being accepted or rejected. *SFRA Review* does not accept unsolicited reviews. If you would like to write a review essay or review, please contact the relevant review editor. For all other publication types—including special issues and symposia—contact the general editors. All submissions should be prepared in MLA 8th ed. style. Accepted pieces are published at the discretion of the editors under the author's copyright and made available open access via a CC-BY-NC-ND 4.0 license.

SFRA Review History

SFRA Review was initially titled *SFRA Newsletter* and has been published since 1971, just after the founding of SFRA in 1970. The *Newsletter* changed its named to *SFRA Review* in 1992 with issue #194 to reflect the centrality of an organ for critical reviews of both fiction and scholarship to the SF studies community. The *Newsletter* and w*Review* were published 6 times a year until the early 2000s, when the *Review* switched to a quarterly schedule. Originally available only to SFRA members or sold per issue for a small fee, *SFRA Review* was made publicly available on the SFRA's website starting with issue #256. Starting with issue #326, the *Review* became an open access publication. In 2020, the *Review* switched to a volume/issue numbering scheme, beginning with 50.1 (Winter 2019). For more information about the *Review*, its history, policies, and editors, visit WWW.SFRAREVIEW.ORG.

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FROM THE
EDITORS

FROM THE EDITORS

Spring 2025

Ian Campbell

I write this on the one hundredth day of the new regime. We've all read about or seen the numerous authoritarian/fascist regimes in science fiction, but what they all tend to have in common is basic competence. Say what you will about the Empire in *Star Wars*, but they're predictable and appear to keep the trains running. After three months of this, we're lost in a farce, with Photoshopped tattoos, tariffs on a whim, poll numbers dropping like rocks into gravity wells and a rotating cast of sycophants and plastic surgery disasters.

Yet farce is like SF, in a way: both hold up mirrors to our own world in order to estrange via distortion what's happening to us and why we permit it to happen. Farce and SF are instructive, above and beyond their entertainment value. Having a ketamine-addicted oligarch waving a chainsaw about as a means of signaling the end of public health programs in a farce (or SF) would be indicative of our own complacency or failure in allowing manifestly terrible people into positions of power, our own shortsightedness in coming up with excuses to make the perfect the enemy of the good, the sheer lunacy of allowing billionaires to exist in the first place.

Perhaps we'll learn from the estrangement. Consider Asimov's *Foundation* novels, where the repugnant Mule strolls in and uses powers of manipulation to twist the system in his direction. "A master of deception, only interested in pillage and plunder," he takes a system that was indeed in need of serious reform and wrecks it for his own delight and profit. In the novels, the Mule (who poses as a clown) is defeated because his maniacal persistence in searching for and defeating those who might represent an alternative center of power prevents him from maintaining control over his conquered populations. He has no allies, only yes-men and opportunists, and this proves his undoing. Perhaps SF does provide us models for reversing authoritarianism, in addition to its function of deconstructing our received assumptions. Most fictional galactic emperors, I feel compelled to note, don't reverse themselves when their trade partners refuse to comply.

Yet the defining feature of farce is that it's intended to be funny. And while there are, to be sure, many things about our new overlords that stimulate our sense of humor, there's nothing funny at all about what's happening to our most vulnerable populations. Trans people being erased, exhibits being removed from the African-American museum at the Smithsonian, the wanton destruction of our economy, the destruction of a century of alliances in order to cozy up to ghouls and psychopaths, the open love for cruelty of all sorts, the summary deportation of international students for free speech or minor traffic tickets, the illegal detention of all manner of innocent people, the sending of many of those people to what is obviously a death camp in a foreign country contrary to every principle of our constitutional republic... all of these together, under the dominion of a diaper-wearing clown gangster, are the sort of thing that would have a literary agent or editor saying it's too over the top to be published.

It only looks like farce, and it's only SF in that what is called "artificial intelligence" is making the decision to destroy the livelihoods of tens of thousands of people who have made national service the defining feature of their lives. In SF, these intelligences are often actually intelligent instead of just pattern mimics, and when they run societies, it's generally benevolent and oriented toward equality. In Iain M. Banks' *Culture* novels, the AIs take care of every human need except the desire to be useful; in *Surface Detail*, the AIs go to great lengths (and take great pleasure in) comprehensively destroying a world-dominating oligarch.

The real genre we're in now is not SF nor farce, but *horror*, where the characters' hubris inspires them to ignore obvious warning signs in order to see what might happen, and then suffer existential threats.

In this issue of the *SFRA Review*, we offer perspectives on modes of governance SF provides us. Because SF generally works via estrangement, we might well view these alternative modes of governance as takes on our own mode of governance. We hope that you will find these takes illustrative. We also have a call for papers, where we ask you for your short takes on the Nebula and Hugo nominees; this is on an abbreviated schedule so that we might publish them in three months rather than six. These do not have to be strictly academic opinions: we welcome a wide variety of perspectives on these works.

With respect to our real world in real need of estrangement, **do not obey in advance**. If forced under threat to modify your speech and actions, you have to make the decision that's best for you. But do not modify your speech or actions just because you think the oligarchy won't like it: at least make them work to try to silence you.

FROM THE SFRA EXECUTIVE COMMITTEE

From the President

Hugh O'Connell

It's been a chaotic shitstorm here in the US over the last few months, with continual attacks on higher education, our international colleagues and students, our LGTBQIA+ colleagues and students, and pretty much anyone else doing any sort of work that doesn't accord with our current administration's whims. These are unprecedented times for the SFRA, at least for the current Executive Committee. From within this maelstrom, we've been doing our best to keep the SFRA running as smoothly as possible for the entirety of our membership.

For example, you may have noticed that we are implementing some different protocols this year around the conference and the dissemination of information about presenters and their work in relation to the program. In this light, we'll ask you to please also be mindful this year about sharing comments about and images of others' work or presentations on social media. It's disappointing to have to say this, because the sharing comes from a good place and it helps extend our community, but some presenters may be in precarious situations. We've already been fielding questions and concerns around this area, and hopefully it goes without saying, but our membership's safety and dignity is our top priority. We are therefore also working on a policy for anyone who needs to switch their presentation from in-person to virtual. You should be hearing more about that from the organizers soon.

Given everything that is going on in higher education at the moment, now is perhaps a good time to ask yourselves: what kind of an organization do we want to have, not only to weather this storm, but heading into the future beyond it? The daily short-range tasks and the more long-range planning of the SFRA are carried out by the elected Executive Committee (comprised of the Immediate Past President, President, Vice President, Treasurer, Secretary, and two At-Large officers). At the start of 2026, we will be turning over two significant leadership roles on the Executive Committee: the President and the Secretary. Coming up later this summer into early fall, we'll be holding elections. In the meantime, we are seeking any and all interested candidates, and if you are curious about either position, no prior experience is necessary. All we ask is for a candidate statement that outlines your interest in and vision for the position (previous candidate statements can be found here). We publish the candidate statements here in the *SFRA Review* in the summer and run the elections in the fall.

SFRA President (the President serves one three-year term and then a subsequent three-year term as Immediate Past President)

The President does a lot to shape the direction of the SFRA, as they are often setting the agenda and overseeing both short-term and long-term planning. I'm copying the official by-law language for the President below; however, as the outgoing President, I'd be happy to speak with anyone about the position in more detail:

"The president shall be chief executive of the association; they shall preside at all meetings of the membership and the Executive Committee, have general and active management of the business of the association, and see that all orders and resolutions of the Executive Committee are carried out; the president shall have general superintendence and direction of all other officers of the association and shall see that their duties are properly performed; the president shall submit a report of the operations of the association for the fiscal year to the Executive Committee and to the membership at the annual meeting, and from time to time shall report to the Executive Committee on matters within the president's knowledge that may affect the association; the president shall be ex officio member of all standing committees and shall have the powers and duties in management usually vested in the office of president of a corporation; the president shall appoint all committees herein unless otherwise provided."

After fulfilling their three-year term, each President then serves for another three years as the Immediate Past President (IPP), acting as a sounding board for the current president and helping to provide some institutional knowledge and continuity for the organization as a whole.

SFRA Secretary (the Secretary can serve one or two three-year terms)

The second position is for the Secretary, who helps keep the SFRA's records, oversees the travel grant process, and manages relationships with the journals, among other responsibilities. I'm copying the official by-law language for the Secretary below:

"The secretary shall attend all sessions of the Executive Committee and all meetings of the membership and record all the votes of the association and minutes of the meetings and shall perform like duties for the Executive Committee and other committees when required. At any meeting at which the president is to preside, but is unable, and for which the vice president is unable to preside, the secretary shall preside. The secretary shall give notice of all meetings of the membership and special meetings of the Executive Committee and shall perform such other duties as may be prescribed by the Executive Committee or the president. In the event the secretary is unable to attend such meetings as may be expected, the Executive Committee may designate some other member of the association to serve as secretary pro tem."

Of course, these official descriptions just scratch the surface of the work that these officers do, and all members of the SFRA's Ex Com are highly involved in the shaping of the organization. If you have any questions about these positions, please feel free to contact me (hugh.oconnell@umb.edu) or the current officers. We'll be happy to chat with you about any of the positions. Or alternately, if you're in Rochester for the conference, please feel free to find me to chat in person!

CALLS FOR PAPERS

CALLS FOR PAPERS

Short Takes on the 2025 Nebula and Hugo Award Nominees

The Editorial Collective

It's award season, and few of us have the time to read all the nominated works. Yet most of us will read at least one of the works, and all of us can benefit from your insight on a particular text. The *SFRA Review* invites readers to submit short (1000-2000 word) analyses on any one or two of the novels, novellas, novelettes, short stories, dramatic presentations, kids/YA, or game writing nominated for the 2025 Nebula and Hugo awards, to be published in our 01 August issue.

The Nebula nominees can be found here, and the Hugo nominees here.

We'd love to read diverse perspectives on these works in order to understand what makes the works noteworthy. The *SFRA Review* invites scholars, fans or casual readers to submit a short take. Each submission should include the following:

- a very brief introduction to the author

- a very brief plot summary and description of the formal qualities of the text: narration, presentation, prose style, etc.

- what in your opinion makes the text stand out as worthy of nomination for a Nebula Award, or why it is *not* worthy of a nomination

- a close reading/watching of a section of the text you feel demonstrates what makes the text (un)worthy

- (optional) a comparison between two nominated works, or between a nominated work and another work you feel is salient

Submissions

Please note that this CFP is on a three-month timeline rather than our usual six-month timeline in order that the pieces be published during awards season.

Submissions should be in .docx format, between 1000 and 2000 words long. Citations should be in MLA format. Please avoid discursive footnotes/endnotes; such notes as are included within the text should not be linked: just use a superscript number and then put the notes at the end of the document. Please include a brief bio of yourself.

Please submit a brief abstract to icampbell@gsu.edu by 30 May and a completed submission by 30 June. Please be prepared to complete edits by 15 July. Submissions will be published in the 01 August issue. We look forward to hearing from you.

SYMPOSIUM: ALTERNATIVE GOVERNANCE IN SCIENCE FICTION

Introduction

James Knupp

It is often argued all art, including writing, is inherently political. An author's words and ideas are shaped by their environment and reflect their own personal ideology. Science fiction, and speculative fiction more broadly, is no stranger to political critiques and speculation on the future of political society. George Orwell's works of *Animal Farm* (1945) and *Nineteen Eighty-Four* (1949) were written as the Soviet Union under Stalin entered the Cold War and reflected Orwell's own personal Anti-Stalinist Left views on totalitarianism. Margaret Atwood speculated on a possible future as the Christian Right rose to prominence in 1980s America in *The Handmaid's Tale* (1985). What these examples in particular bring to their political critiques is offering alternative forms of governance from the liberal democratic traditions their authors came from. It is divergence from our norms where we can see easily the biggest critiques and possible alternatives to our own ways of governing.

However, much of the science fiction canon is filled with works where the governments underpinning the society are merely set dressing reflections of our own real world and history: simplistic totalitarian regimes, liberal democratic republics, hereditary monarchies, etc. Often there is not much time spent on reflecting on the impact of these governments on society at large, or alternatives to them. They simply exist so the story has a somewhere familiar to take place.

For this symposium, we asked contributors to examine works which do engage with ideas of governing outside our existing norms. Some articles will examine a collection of works with similar themes, looking at how different authors approach the same issue in governing. Other articles look at a particular author to examine the author's own personal views on governance as reflected in their work. All of these articles look at ways the question "how do we run a society" have been answered by science fiction's authors. Some of those answers could serve as inspiration for the next wave of reformatory political movement, and some could serve as cautionary tales.

I've been excited for the symposium to be released because for me, the core to science fiction is looking at the ways things could be, but aren't, good and bad. And when we apply that lens to something as grand and fundamental as governing ourselves, you pave the way for discussions that could maybe one day reshape society.

James J. Knupp is a project manager at a think tank in Defense and Foreign Policy Studies, as well as associate editor for the *Science Fiction Research Association Review*.

Touring Post-Capitalist Imaginaries after 2008

Jeffrey Barber, Integrative Strategies Forum

Imagining the end of capitalism

Since the 2008 global financial crisis, concerns about global warming, inequality and neofascism encouraged discussions, social campaigns, and publications advancing the discourse of what alternatives exist to the current dominant governance system of capitalism. The phrase "it's easier to imagine the end of the world than the end of capitalism," repeated so often over recent years, is a challenge to creative writers and producers of speculative future narratives. This imaginative blind spot is understandable given the half-century dominance of neoliberal capitalism, the decades of Cold War anti-communism hysteria and blacklisting, and the many assumptions regarding the flaws and failures of pre-World War I, Progressive Era utopian fiction.

Rising awareness of climate change, biodiversity loss and authoritarianism as well as racism, sexism and the expanding inequality gap between rich and poor raise the question and challenge, especially in the science fiction domain: How do we imagine future alternatives beyond the conventional tropes of manifest destiny, techno-feudalism and collapse, particularly how an ecologically sustainable and socially just post-capitalist society might plausibly evolve, look and feel like.

The other phrase contributing to this challenge is Margaret Thatcher's claim "there is no alternative" (TINA). Mark Fisher (2009) named the difficulties embracing both producers and consumers of post-capitalist imaginaries as *capitalist realism*, "the widespread sense that not only is capitalism the only viable political and economic system, but also that it is now impossible even to imagine a coherent alternative to it.

Touring postcapitalist imaginaries

In this paper, we embark on a chronotopic tour of some of the post-capitalist democratic imaginaries published after and influenced by the 2008 financial crisis, observing post-capitalist governance structures and strategies. While *Star Trek* is one of science fiction's most well-known post-capitalist imaginaries, having abandoned the money system after the invention of replicator technology, our tour will concentrate on the much smaller set of SF narratives not reliant on such convenient techno-fantasy devices, restricting ourselves mostly to those stories within the realm of current science plausibility (with some exceptions).

Our tour is "chronotopic" in that we explore the spatio-temporal afforances of a series of storyworlds involved in alternative/future history timelines, along with critical speculations and commentaries regarding parallel issues and events in the author's storywriting timeline. We are less interested in the plot and characters except in how they perceive, reflect, and portray the

storyworld and its history. Our tour will focus on five science fiction novels imagining life and governance after capitalism. Admittedly, these reflect the authors' US and UK-based perspectives.

Post-capitalist destinations

Writers of alternative futures and histories have produced numerous works imagining the end of capitalism, especially those set in postapocalyptic settings, where the remains of the capitalist past are equated with lost civilization. There are also the postcapitalist techno-fantasy storyworlds where advanced technologies have conveniently provided scientifically improbable utopian "solutions" to the earth's most vexing problems (e.g., *Star Trek*'s replicator, wormhole travel). The scientifically plausible, if politically and culturally challenging scenarios, in imagining postcapitalist, utopian realist futures, unfortunately claim a disappointingly small share of the commercial flow of future imaginaries in media and popular culture.

We now set off on this tour of postcapitalist imaginaries, covering the overall collective timeline from 2008 to the 2160s, visiting five storyworlds published between 2016 and 2020.

Eminent Domain

We first visit Carl Neville's *Eminent Domain* (2020), told through nostalgic and traumatic recollections of the past interlacing cat and mouse chases, interrogations, debates, dreams, and institutional reports. We follow a wide range of characters, from revolutionaries to dictators, security agents to moles, assassins and university students.

Our journey begins in the People's Republic of Britain (PRB), the Former United Kingdom (FUK), in London across the second week of April in the year 2018. People here are celebrating the twentieth anniversary of the Breach and the "trans-European workers accords that established parallel power, integrating unions and institutions all across Europe following the victories of radical socialist governments." This is a time of partying and reflections on the conclusion of years of struggle by "community-led initiatives and para-state mutualist organizations in both urban and rural areas of the former UK" in the transition to the current democratic socialism of the PRB. The alliance of rebelling networks and organizations eventually integrate into Security and Services Facilitation (SSF). One arm of SSF provides services: education, childcare, localized food and energy production; the other focuses on security. We first follow Alan Bewes, one of the early visionaries of the Breach, who is quietly murdered in his sleep. Murder is upgraded to political assassination, and SSF assembles a team of veteran SSF agents to investigate.

Alternate timeline

This is not the depressing totalitarian hell of George Orwell's *Nineteen Eighty-Four*; more like the hedonistic party culture of *Brave New World* without the class exploitation and bioengineering in Huxley's scenario. PRB culture instead more resembles Huxley's *Island*, where psychedelic drugs are not designed to numb or brainwash citizens but to enhance their experience and imagination.

In this alternate history of the PRB, neoliberalism, capitalist realism, and Thatcherism failed to take root. Instead, socialism prevailed, not just in the UK but in other countries throughout Europe (the Co-Sphere) as well as the People's Republics of United Africa and the Middle East. Instead of collapsing, the post-Stalinist Soviet Union managed to establish sufficient technological, political, and economic resilience, assisted by the affordances offered by the sophisticated computer tools necessary for central planning to work effectively. A Russian comrade describes their Pro/Diss system as "a beautiful, sublime, crystalline interlinking of networks and information flows, interfacing with our most advanced AI and robotics to mediate production and distribution on a scale, vaster, faster and more complex than any system before it."

Market vs. central planning

While neoliberal critics continue to downplay central planning, a number of contemporary left economists point out how, with the rise of Big Data technology, some of the biggest corporations are central planning practitioners, as highlighted by Phillips and Rozworski in *The People's Republic of Walmart* (2019). In *Eminent Domain* history, throughout the 1970s and 1980s, unions amalgamated in a Universal Union in alliance with SSF, the latter being "instrumental in distributing food, re-commoning land for cultivation and dwelllings, infrastructure and logistics support, and ensuring, through mass action, that key industries and facilities became publicly owned." SSF also played a major role in cooperativization in the capital and investment strike known as the Autarchy.

Taking place in the 1970s, the Autarchy mirrors the IMF bailout and the UK's Winter of Discontent that took place in our world, a time of austerity, protests, and anger, yet leading to very different political outomes. In *Eminent Domain*, Margaret Thatcher does not become prime minister or claim "there is no alternative;" nor does the neoliberalism of Hayek and von Mises take hold with its agenda of deregulation, privatization, and glorification of the market. In this history, the British Left was not paralyzed by the pessimism of capitalist realism, but instead enjoys the benefits of the socialist distribution of wealth, healthcare, housing, food, information, and leisure time, not to mention a diversity of recreational pharmaceuticals.

We spend much of our time accompanying a number of SSF members investigating the assassination, which apparently orginated from the new right-wing administration of the United States. The new American president, who resembles a fusion of Donald Trump and Elon Musk, has scuttled the détente between the US and Co-sphere, becoming increasingly antagonistic towards the socialist Co-Sphere of nations, especially targeting the PRB with various sabotage activities. Soviet Russia has its own issues with the PRB, believing it is too democratic internally, creating risks to the Co-Sphere.

Ministry for the Future

In contrast to the alternate history of *Eminent Domain*, our next destination takes us to a near future, the year 2025. This is the world of Kim Stanley Robinson's *Ministry for the Future* (2020),

published during the Covid pandemic and two months before the January 6th insurrection at the US Capitol. We first arrive in the Indian province of Uttar Pradesh at the scene of a catastrophic heatwave killing millions: the deadly consequence of denial, disinformation, and deflection of responsibility from the threat of global warming that climate scientists and activists have been warning of for decades. As so often happens, the consequences fall not on the deniers and those responsible, but on vulnerable populations, some among the least responsible.

We then shift to Zürich, Switzerland, where the new UN Ministry for the Future is officially tasked to deal with the urgent and politically complex problem of climate change. As head of this new UN agency, Mary Murphy works to achieve agreement among national governments, transnational corporations, and other stakeholders. Mary is confronted by the sole survivor of the Uttar Pradesh tragedy, development aid worker Frank May. Frank represents the strident voice of climate desperation, the need to take immediate and radical action against the maddening inertia of government bureaucracies, class privilege, and corruption. Our tour follows the dialogue between these two characters and the range of actions proposed and taken, amplified by a heteroglossia of mystery voices, human and nonhuman (including photons and markets), challenging capitalist realism dogma with an array of sustainability concepts, principles, riddles, and policy tools as well as more violent means involved in the postcapitalist future discourse.

Financing is a major issue, where the priority of corporate profits clash against the costs of effective climate mitigation and adaptation mechanisms. The failure of the market to adequately address climate change, even undermining efforts to deal with it, highlights the inadequacy of the neoliberal ideology still dominating national governments and corporations. As he Ministry team race against the clock of deepening and irreversible impact, other players seek more immediate, radical actions, such as the geoengineering, hostage taking at the World Economic Forum, bombing of power plants, and targeted assassinations of CEOs.

Rube Goldbergian machine for social change

As Michael Svoboda (2020) observed, technical topics covered in *Ministry for the Future* include "the history of central banking, modern monetary theory, the Gini index, blockchain technology, Mondragon, carbon taxes, clean energy technologies, Jevon's Paradox, different forms of geoengineering, population biology, and wildlife corridors." Altogether, the result of this "Rube Goldbergian machine for social change ultimately delivers the goods: a more equitable social economy and a more stable climate."

Central planning vs. market

The Ministry's AI persona, Janus Athena, struggles to explain to us computer illiterate humans the thinking behind the software team's economic plan. The AI reviews Friedrich Hayek's argument (and premise of neoliberalism) that markets are the best calculator and distributor of value, addressing Hayek's claim that planning gets things wrong "because central planning can't collect and correlate all the relevant information fast enough." This was a fatal flaw in the

Soviet Union's premature efforts deploying complex central planning aspirations to pre-capitalist modernization "But now, with computers as strong as they've gotten, the Red Plenty argument has gotten stronger and stronger, asserting that people now have so much computing power that central planning could work better than the market."

Another Now

We return to London, this time in the parallel alternate world created by Yanis Varoufakis, an economist, activist, and former Finance Minister of Greece, who wrote *Another Now* to provide a more entertaining vehicle for the post-capitalist ideas in his 2023 nonfiction book, *Techno Feudalism: What Killed Capitalism*. The protagonists of *Another Now* (an ex-Wall Street investment banker, a radical feminist philosopher, and a mad computer scientist) confront an alternative history which split precisely following the 2008 financial crisis. This split resulted in an apparently thriving socialist UK, where banks and investors, instead of being bailed out at the expense of taxpayers, were held accountable, as public and private investment was redirected into radical community-oriented productivity and needs. In the year 2025, when the Ministry for the Future is launched in Zurich, our three characters secretly converge inside a small computer lab in San Francisco, confronting a physically small but significant tear in the space-time continuum, allowing them to interrogate their parallel selves in a radically different political landscape. This *could* have been their own history, they realize, given a different set of decisions and actions by the Left and community organizations at the time. Like the PRB, this Other Now rejected neoliberalism, engaging in the collective task to construct an egalitarian, socialist alternative in this parallel London.

This post-2008 socialist society has essentially eliminated poverty and class injustices (although not the "cockroach" of patriarchy). In this world, the affordances and power of digital technology are turned to the benefit of the people, in contrast to our world's prioritization of profits over people. In the Other Now, community-based networks and campaigns organize strategically to take advantage of the historic opportunity presented by the 2008 financial crisis, steering the offical response away from bailing out the commercial bank and investment sector that caused the problem. Instead, they radically restructure the financial and others institutions and thus the flows and valuation of labor and goods. From the bits of information our protagonists are able to squeeze through the wormhole, they learn various features of the Other Now, including:

> …an absence of income and sales taxes; the freedom of workers to move from company to company while taking their personal capital with them; the curtailment of large companies' market power; universal freedom from poverty, but also from a welfare state demanding that benefit-recipients surrender their dignity at the door of some social security office; a payments system that was free, efficient and which did not empower the few to print money at the expense of the many; a permanent auction for commercial land that exploited market forces to the full in the interests of social housing; an international

monetary system that stabilized trade and the flow of money across borders; a welcoming attitude to migrants based on empowering local communities and helping them absorb newcomers.

The new system addresses many societal ills; alas, not persistent sexism and patriarchy.

Techno-rebels

In the Other Now, new activist communities emerged in response to the possibilities opened up by the financial crisis, including the Crowdshorters movement. The Crowdshorters "undermined the central banks' efforts surgically and stylishly," understanding that "by privatizing everything, capitalism had made itself supremely vulnerable to financial guerilla attacks." They understood that "the creation of CDOs out of plain debt—a process known hubristically and ironically as securitization—afforded the perfect opportunity for a peaceful grassroots revolution."

Other techno-rebels include the Solsourcers (Solidarity Sourcing Proxies), who targeted the largest shareholders in the great corporations: pension funds. The Bladerunners were neo-Luddites, adamant that the new technologies "should be utilized in the cause of shared prosperity, not as instruments of neo-feudalism or of a class war by the few against the many." Their strategies strengthened those of climate activists, teaming up with the Environs "in order to hasten the demise of the fossil fuel industry. Together, they forced panicking governments to introduce stringent limits to pollutants, to reduce net-carbon targets to zero by 2025 and even to limit land-clearing and cement production." Within three years, the Crowdshorters, the Solsourcers, the Bladerunners and the Environs had formed a highly effective network of targeted activists that the oligarchy-without-frontiers could not withstand.

The International Monetary Project (IMP)

One important institutional mechanism in the Other Now transition was the International Monetary Project (IMP), successor to the International Monetary Fund, which regulated the world's currency system. The IMP had instituted a market-based, almost fully automated system able to balance out global trade and money flows. In addition, the system "was a mechanism generating money that funded the transition of developing regions to low-carbon energy, green transport, organic agriculture, as well as decent public education and health systems."

PerCap

The other key transition mechanism, initiated in the US in 2011 for anyone with a social security number, was a federal account called Personal Capital (PerCap), to which the Fed credited small amounts each month. Graduallly, accounts migrated at different paces for different countries from the commercial banks to the new central bank system. Investment banking gradually melted away after corpo-syndicalist legislation ended tradable shares, leaving the flow of digital money across PerCap accounts as the remaining legal tender.

Once capitalism had died, and markets were freed from private ownership, a different kind of value took over. Instead of judging something's worth by its exchange value—what it would fetch in return for something else—the Other Now judged worth according to experiential value—the benefits the thing brought to the person who used it. Prices, quantities and monetary profits were no longer the sole masters of society.

New York 2140

In our tour, we move ahead one century, from the 2036 London of *Another Now* to Kim Stanley Robinson's *New York 2140*. We find ourselves on Madison Avenue and the Met Life Tower. Modeled after the Campanile in Venice, the building, where much of the story is centered around, is now a co-op, owned and governed by its residents. It is soon to be threatened with absoption by a higher ground investment firm, eager to reap what financial benefits may accrue from the especially flooded remains of buildings, which also served as the humble habitats of the poor and desperate. Our local host/narrator is obviously a New Yorker, choosing to remain the mysterious "citizen" commentator, intermittently helps us with the chronotope of 2140 New York, for example in his brief review of the millions of years of geological change shaping the area, how ice age glaciers shaped the Hudson River Valley and the current shape of Manhattan Island, now flooded with the 50 foot rise of sea-level, submerging much of what we knew as the major neighborhoods, business districts and coastlines making up New York City.

Capitalism still reigns, although greatly weakened by ecological catastrophes, scandals and other pressures. We are nevertheless in the midst of a major ecosocial-political transition. Unlike the global politics of the *Ministry for the Future*, the politics of *New York 214*0 are at the city level, where global policies and visions must be played out. Among the operations of local governance in this urban watery landscape of climate adaptation, we attend council meetings of the co-op and building habitat. We visit the office of the Mayor and are introduced to their head of security services, Inspector Gen Octaviasdottir. Inspector Gen takes us on a tour of some legally questionable establishments in less well-lit neighborhoods. Unlike the PRB, recreational drugs here are illegal, but available. Gen is looking for two precocious lefty computer programmers abducted by real estate investment thugs, part of a criminal plot to capture common property in the drowned city.

It is through Charlotte, head of the Householders' Union, that we begin to see the work of NGO and the public/private hybrid organizations and networks in the background, with the potential to join together in powerful political waves. As these various characters talk and work together, including hedge fund analyst-in-transition Franklin Garr, they manage to outsmart their investment firm opponents.

> "I wanted a finance novel that was heavily based on what lessons we learned—or did not learn—from the crash of 2008 and 2009. All science fiction novels are about the future and about the present at the same time," Robinson explained in a 2019 interview. "It's about finance, and climate change, and New York as a place, and those particular characters, and

what we could do now to influence events to make a better future for the people yet to come. Utopian climate change fiction: the obvious next hot genre." (Kimon, 2017).

This story also begins with a criminal investigation. Not of murder, as in Eminent Domain, but of missing persons. Not assassination but abduction. We are in the midst of a ruthless real estate war of urban development investors in a future flooded New York City. This is not the climate apocalypse of Day After Tomorrow, but the area is definitely altered by the sealevel rise. New York, with its many busy canals and aquatic traffic, has become an American Venice. The novel opens with a conversation between two computer programmers (soon to be abducted) about the nature and value of money, preparing readers with the historical-economic context of the story. Beginning with the provocative line "whoever writes the code creates the value," explaining that "without our code, there's no computers, no finance, no banks, no money, no exchange value, no value." We are told "the problem is capitalism," noting that "we've got good tech, we've got a nice planet, we're fucking it up by way of stupid laws. That's what capitalism is, a set of stupid laws."

This conversation about money, value and the destructive nature of late capitalism, is followed by the opportunistic thoughts of real estate investor Franklin, who later experiences his own mental transition as to his own goals and the meaning and impacts of his particular work and knowledge. Franklin is the inventor of the Intertidal Property Pricing Index (IPPI), "which allows investors to price drowned assets. No one knows exactly what half-submerged buildings are worth—the seas could rise again," but the IPPI "makes it possible to buy derivatives based on underwater mortgages; as a result, a new housing bubble is underway" (Rothman, 2017). The trick is being able to leave before the bubble breaks.

We move to Washington, DC, after Charlotte's election as Representative of New York State's Twelfth District. A new Congress has arrived to consider the call for a new government bailout following what the Citizen described as another "popped bubble, liquidity freeze, credit crunch, big finance going down like the KT asteroid." We observe the meeting between the Federal Reserve chair and secretary of the treasury and the big banks and investment firms "all massively over-leveraged, all crashing." They are indeed offered a bailout of four trillion dollars, "on condition that the recipients issue shares to the Treasury equivalent in value to whatever aid they accepted… Treasury would then become their majority shareholder and take over accordingly…Future profits would go to the U.S. Treasury in proportion to the shares it held.

This time, in the year 2143, the investment banks are nationalized. There is no financial flight, as similar salvation-by-nationalization offers were being made by the central banks of the European Union, Japan, Indonesia, India and Brazil. According to the Citizen, "the U.S. government would soon be dealing with a healthy budget surplus. Universal health care, free public education through college, a living wage, guaranteed full employment, a year of mandatory national service, all these were not only made law but funded." In conclusion, "the neoliberal global order was thus overturned right in its own wheelhouse.

Infomocracy

Our last tour stop is just twenty years later, scrutinizing the future global system of data-driven micro-democracies in Malka Older's *Infomocracy* (2016), taking place in the 2160s.

Microdemocracy

Here the previous world of nation states has evolved into a complex system of centenals, political entities of 100,000 citizens, each with the ability to choose their type of government in global elections taking place every ten years, centenals of a particular party collectively united politically while geographically distributed. Rather than a particular type of government being place-based, as with the nation states which evolved during the era of imperialism and colonial empires, historically tending to violently suppress ethnic and other resistance movements, governance models are democratically chosen and enacted across the vast patchwork of local populations. With each election of centenal governments, the most votes establish the Supermajority party, which becomes the hegemonic political force for that decade, until the next election decides whether to anoint a new party Supermajority. The election process is administered by the global fact-checking bureaucracy know as Information, an institutional, peace-keeping structure that evolved from a nonprofit synthesis of the United Nations and internet companies to ensure citizens and organizations have access to undistorted information.

Disinformation

Infomocracy was published in 2016, the year of Donald Trump's first election to the presidency amid growing attention to the abuse of public data, as embodied in the Cambridge Analytical/Facebook scandal and Russian social media disinformation campaigns (Kaiser, 2019; Wylie, 2019). As of the 2024 US election, the issue of disinformation and access to reliable information sources has only deepened. In an interview (Open Mind, 2019), Malka Older explains how the idea for the book came out of "frustration and annoyance with the way things are in the world today," citing disinformation campaigns such as the Swift Boat campaign against John Kerry in the 2004 election and the focus more on personalities than governing policies.

> …for me, the idea that information is a public good that we should think about in much the same way that we think about electricity, that we think about water, is a very powerful one. You know, one of the theories, one of the frameworks for thinking about what's going with social media and with these corporations now is the idea of surveillance capitalism, that these companies are profiting, not just from the sort of ads that we see immediately but really from taking this agglomeration of data that they learn about us as we use them and selling that….to imagine making data, all data free and public is one way to turn that around.

Corporations

What companies remain have morphed into global political governance parties who also compete for centenal votes in the elections. "PhilipMorris is the big corporate to worry about," one character advises. Corporate rhetoric, advertising, and lobbying is relentlessly monitored by Information, which in the days of the first election, "was still trying to assert itself, and they jumped all over it, shut it down. The language in the legal precedent is clear and forceful… Diverting, twisting, or otherwise affecting the information received by citizens is illegal for any government."

Apocalyptic vs. utopian realism

In their review of *Ministry for the Future*, Monticelli and Frantzen (2024) pose utopian realism as "an antidote to today's pervasive atmosphere of capitalist realism." Robinson's books explore a multiplicity of strategies confronting the threats of climate change and approaches that combine "top-down strategies with grassroots organizing, technological solutions with back-to-nature projects, and ecomodernism with eco-spiritualism." While these strategies are directed at climate change, they ultimately involve the deeper challenge of changing the socioeconomic system and petropolitics which generated the problem.

At the time of writing, immediately following the 2024 US presidential election, the need to provide ecotopian alternatives, storyworlds and postcapitalist futures, stories of sustainability transitions, strategies and visions has reached a critical stage. Malka Older's Centenal Trilogy provides a welcoming ambiguity for the reader to fill in the history and changes which led to the world-wide adoption of microdemocracy and acceptance of Information as mediating agency. Older leaves room for readers and other writers to imagine different scenarios as to how a global agency as Information and microdemocracy could evolve.

The details of these five stories overlap in their engagement with the strengths and weaknesses of our capitalist present and past, given the overall timeline between 2008 and 2160. Various climate action strategies identified in *Ministry for the Future* and *New York 2140* can easily be imagined within the other three storyworlds, moving power away from corporate elites to local communities and democratic governance.

Each of the authors struggle with the obstacles of disinformation, propaganda, and surveillance, as studied by Shoshana Zubof (2019), Cory Doctorow (2020) and others. Each of these authors envision creative disruption emerging from these waves of economic crises. However, we have been visiting scenarios where bailouts are tied to meaningful system change. Whereas Older and Robinson imagine the evolution of alternative utopian/dystopian systems, Neville and Varoufakis imagine parallel alternative histories of post-capitalism.

What made the Soviet Union stay united and economically robust in *Eminent Domain*? Could improvemenets of Big Data controlling central planning have been sufficient to not just survive but thrive? Phillips and Rozworski (2019) suggest this scenario in their book *The People's Republic*

of Walmart, pointing out how past criticisms of Soviet central planning are now surpassed by the capabilities that came with computerization, systems modeling, and the technological advances in microelectronics and artificial intelligence.What was dismissed as failures of Marxism are now embraced as essential operational norms of multi-national corporations dealing with the complexities of global production, distribution, consumption data and decision-making. Neville describes his novel's intention as "an attempt to think against the the onslaught not really of capitalist realism but more of something like 'neoliberal reason'" (Hatherly, 2020).

Our tour ends, looking back on these interchanges between alternate worlds and histories, the exchange between actual and possible realities, allowing us to peruse both, to reflect on what is possible in our own futures. To get to a future we want, we must be able to imagine it first.

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Resisting Colonialist Politics Through Sex-Role Reversal: A Critical Reading of Octavia E. Butler's "Bloodchild"

Anupom Kumar Hazarika

Octavia E. Butler is known "for stories that trouble rather than reify difference, and unsettle those readers searching for easy answers." (Pasco et al. 249) To put it succinctly, science fiction, for Butler, becomes a literary vehicle for problematizing binary opposites: colonizer and colonized, human and alien, male and female. In her essay "Defining Butler: Postcolonial Perspectives," Thelma Shinn Richard says, "Octavia Butler brings postcolonial understanding to bear on the possibilities inherent but unrealized in contemporary America." (118) Richard draws our attention to Butler's cultural identity as an African American that is wedded to America's colonial history. Being a Black woman writer, Butler makes sure that her science fiction narratives allusively explore the facets of colonialism.

Octavia E. Butler's science fiction narratives corroborate what Michelle Reid argues in her paper "Postcolonial Science Fiction." Reid says, "Science fiction doesn't have to work within, [sic] existing colonial history. We can project a world completely different to our own into other times and spaces that doesn't have to be subject to the same assumptions or colonial legacies" (Reid). Butler's literary freedom allows her to weave stories that are allusively linked to empirical world of the reader. Exploiting the elements of science fiction, Butler, in "Bloodchild," imagines an estranged universe peopled by humans and aliens. The text dramatizes how the male-sexed body is used as a site for implantation of alien eggs, which Kristen Lillvis identifies as an instance of the exploitation of the colonial subject. The literary strategy of using the binary of human and alien as a metaphor for the colonizer-colonized dyad corroborates Raffaella Baccolini's argument that the associations between imagined events outside human history and historical occurrences attribute a paradoxical status to science fiction. (296-297) Butler's science fiction short story, then, is contingent on the colonial encounter.

Butler's short story, titled "Bloodchild," depicts an unusual relationship between a human protagonist and an alien. By "unusual relationship," I imply an interspecies bond built on affection, trust, and care. Octavia E. Butler herself explains the thematic concerns of her story about aliens in her afterword to the short story. She lays out three different ways of looking at her narrative. She calls it a romance between two distinct beings, a coming-of-age story concerning a boy, and a story about men becoming pregnant. (30) Butler makes the act of approaching the text critically easier for the reader, who can then effortlessly explore the three themes around which she builds the plot. As mentioned in the previous paragraph, Butler does not provide any univocal interpretation of the colonizer-colonized dyad. She, in fact, complicates the line of inclusion/ exclusion separating the category of the colonizer from that of the colonized. The line of inclusion/

exclusion is challenged by b her characters—Gan (a human) and T'Gatoi (an alien)—who rewrite the notions of gender, kinship, and love.

Before I discuss how T'Gatoi and Gan reconfigure gender norms, it is pertinent to situate their relationship in the colonial context. Results from earlier studies indicate that gender is "a significant historical consideration" (Levine 2) that paves the way for examining how gender shapes both European and non-European configurations of gender. (Ghosh 737; Hassan 1) A significant work that critically looks at the discursive formations of white and non-white masculinity is Mrinalini Sinha's *Colonial Masculinity: The Manly Englishman and the Effeminate Bengali in the Nineteenth Century* (1995), where she argues that "the contours of colonial masculinity were shaped in the context of an imperial social formation that included both Britain and India." (2) Incorporating "the intersection of the imperial with categories of nation, race, class, gender and sexuality" into her line of reasoning, Sinha says that "the politically self-conscious Indians occupied a unique position" within the colonial order of masculinity. (2. Correspondingly, Philippa Levine urges her readers to consider gender as an analytical tool that signifies "'the multiple and contradictory meanings attached to sexual difference'" and goes on to argue that "an understanding of gender does not stand alone or somehow 'above' other factors, such as class and race, also at work." (2) She says that "it was not uncommon for colonized peoples to be seen by imperialists as weak and unmasculine, because they were colonized, an opinion that already assumed that male weakness and lack of masculinity were central to the process of becoming a colon.y" (6) A case in point is middle-class Bengali Hindus who were designated as 'effeminate babus'. (Sinha 2) Radhika Mohanram's examples of British and Indian soldiers in *Imperial White: Race, Diaspora and the British Empire* (2007) bear out the relational link between white masculinity and Indian masculinity. Embodiment becomes the focal point for Mohanram, who says that the darkened body of the colonized Indian man subjugates him "in a hierarchical relation with the British." (12) The hierarchical relationship between the white and the non-white body constructs the Indian soldier as "superstitious, irrational, giving validity to rumour." (7) During colonialism in Africa, the universalized idea about masculinity as popularized by the Europeans stood in stark contrast with the multi-faceted nature of African masculinity. (Scott 4) Transgressive gender performances native to African society were targeted by the Europeans, and colonial subjects who did not conform to the gender binary were seen as having a negative influence on Christian society (Elnaiem).

Postcolonial approaches to masculinity seem to be complemented by the science fiction genre, which has played a vital role in refashioning the sexed body, gender, and sexuality. Feminist interventions in SF make it apparent that SF became a fertile ground to resist gender, sexuality and identity during the 1960s and 1970s. (Thibodeau 263) In *In the Chinks in the World Machine: Feminism and Science Fiction* (1988), Sarah Lefanu says, "The stock conventions of science fiction—time travel, alternate worlds, entropy, relativism, the search for a unified female theory—can be used metaphorically and metonymically as powerful ways of exploring the construction of 'woman.'" (4-5) Lefanu emphasizes how the generic conventions of science fiction can help

writers explore how bodies are socially constructed. With regard to the inquiry into liberal humanism, Constance Penley argues that "new pressures from feminism, the politics of race and sexual orientation, and in the dramatic change in the structure of family and the workplace seem to have intensified the symptomatic wish to pose and re-pose the question of difference in a fictional form." (vii) The non-human in science fiction is a significant literary tool through which science fiction engages with "the question of difference" (Penley vii). Regarding the alien, Amanda Thibodeau argues, "While alien bodies have often represented feared "otherness," they offer feminist science fiction a rich site for the re-imagining of gender, sexuality, and identity within narratives that challenge the heteronormative implications of "progress" built into space exploration narratives." (263) Butler's representation of T'Gatoi exemplifies the point made by Thibodeau. Even though she does not provide any information regarding how the zone of the aliens is organized along gender lines, she challenges the gender binary via her protagonist T'Gatoi, who actively participates in the political sphere, which is traditionally perceived as a masculine space in the reader's empirical world. Gan says, "T'Gatoi was going into her family's business—politics" (Butler 8). Her reputation as an efficient negotiator is enhanced as she puts "an end to the final remnants of the earlier system of breaking up Terran families to suit impatient Tlic" (5). Furthermore, her unceasing endeavour to look after Gan and his family illustrates that she is the primary breadwinner for Gan's family. Her role as a breadwinner, along with her interest in the public, masculine world, evinces the elasticity of the masculine gender category and allows her to stretch the category of masculinity. Her challenge to masculinity is intertwined with her political intent to reorganize colonial society; therein lies the text's strongest postcolonial undercurrent. It is apparent that Gan's and T'Gatoi's lives are organized according to the tension between the colonizer and the colonized. As Gan says, "Only she [T'Gatoi] and her political faction stood between us and the hordes that did not understand why there was a Preserve." (5) The Preserve is an area of land where Terrans (humans) are kept. However, love's transformative possibilities shape their preordained destinies. Textual evidence reveals that T'Gatoi has been a regular visitor to Gan's house and considers Gan's house as "her second home." (4) T'Gatoi's care for the humans is evident in her aforementioned effort to put "an end to the final remnants of the earlier system of breaking up Terran families to suit impatient Tlic." (5) T'Gatoi's apprehension of Gan's house challenges both the zone of the aliens and the zone of the humans which "are opposed" (Fanon 37) and "follow the principle of reciprocal exclusivity." (38) It attests to the split in the colonial encounter.

Both science fiction and postcolonialism are concerned with bodies. Ashcroft et al. argue that the body "is important for postcolonial studies that reminds us that the discursive practices of imperial power operated on and through people, and it offers a ready corrective to the tendency to abstract ideas from their living context" (202). Scholars working in the realm of science fiction recognize how bodies represented in SF speak volumes about the discursive control of the body. In his paper "Teaching Postcolonial Science Fiction," Uppinder Mehan provides a frame of reference for examining the tropes of science fiction.

Both postcolonial and sf writers have a rich literary tradition of complicating the notion of the body as an unmediated and sovereign entity: postcolonial writing examines the effects on identity when a profound distance is created between self and body by the histories of slavery and conquest which erase the lively and vibrant cultural context necessary for fuller understanding of the native's body, and by the 'scientific' construction of the black or brown as either inferior or superior to but definitely different from the 'normal' white body; while sf tales of robots, shape-shifting and humanoid aliens, androids, clones and cyberspace have all contributed to calling into question 'the natural body' far earlier than most commentators and critics. (165-166) In Butler's imagined world, no human can exercise control over his/her own bodies. The fate of the body is determined by the aliens on some planet. The ritual of implanting alien eggs inside the male body has been an outcome of a meaningful negotiation between the humans and the aliens. To save their species from extinction, male-sexed bodies are used as wombs where the eggs of female aliens are implanted. However, it is self-evident that the colonized man is unable to govern his own body ontologically. Exploitation of the male body testifies to the colonial ideology of disentangling masculinity, as the Europeans understand it, from the body of the colonized man. As stated earlier, T'Gatoi's representation as an alien is a means to imagine gender differently. Likewise, Gan's portrayal—which is in correspondence with the colonial subject—becomes a vehicle for complicating the colonized man's masculinity. Unlike his brother, who steps back from the ritual and who does not show any keen desire to carry eggs, Gan willfully chooses to risk his life. Even though Gan's role as a surrogate 'mother' may be construed as an instance of emasculation by some readers, Gan's intention reorients implantation as understood by the aliens. Gan's decision, no doubt, is predicated on the customary practice endemic to the planet and is affected by his social status as a colonial subject, yet he fervently acknowledges his desire to carry T'Gatoi's eggs. Gan changes the fate of his sexed body by altering the biological functions assigned to the male body and provides a challenge to colonizing power through his body.

Gan's conviction that he delights in carrying T'Gatoi's eggs undermines heterosexuality as understood by the reader. Gan belongs to a society which, I think, is patrilineal as heterosexual men have more sexual freedom than women. For men, copulation has wider implications. They can copulate with women and female aliens. In the text's imagined colonial context, patrilineal unions give the aliens the incentive to prolong implantation. Sexual copulation between men and women is predicated upon the demand of the aliens. When Gan says that "they [the aliens] usually take men to leave the women free to bear their own young," Gan's brother retorts, "To provide the next generation of host animals." (Butler 21) The fates of both species, which are entwined, rest upon colonized women whose reproductive labour is a form of exploitation, for they have to emotionally detach themselves from their offspring and cannot experience maternal love properly. For instance, Gan's mother, carries a troubled expression on her face. Collectively, she and T'Gatoi have been overseeing the stages of Gan's development: "T'Gatoi liked the idea of choosing an infant and watching and taking part in all phases of development. I'm told I [Gan] was first caged

within T'Gatoi's many limbs within three minutes after my birth." (8) Lien, Gan's mother, refuses to consume sterile eggs that can prolong her death, which can be construed as her endeavour to resist the practice of implantation. As Alexander Meireles da Silva argues, "There is a particular reason why human women on the Preserve, like Lien, have an extra sense of power that the males do not have . . . Without human women, the Tlics would be left without hosts for their eggs." (375) Gan says, "Why else had my mother kept looking at me as though I were going away from her, going where she could not follow?" (Butler 27) Gan's mother believes that implantation cannot cement the two species emotionally. In fact, narratives about the imposed practice reveal that men and women are destined to become partake in the Tlic system of reproduction: "Back when the Tlic saw us as not much more than convenient, warm-blooded animals, they would pen several of us together, male and female, and feed us only eggs. The way they could be sure of getting another generation of us no matter how we tried to hold out." (Butler 11) With regard to the representation of the Tlic system of reproduction, Kristen Lillvis, in her paper "Mama's Baby, Papa's Slavery? The Problem and Promise of Mothering in Octavia E. Butler's "Bloodchild"," notes that "The history of Tlic rule and forced Terran reproduction evokes the horrors of slavery, reservation systems, and internment camps, where the nonwhite other is segregated and coerced (through threats, beatings, or alcohol) into a passive or servile position." (11) What are the implications, then, of Gan's decision to become a human host? Gan's disavowal of any heterosexual inclinations towards (human) females can be interpreted as his wish to disentangle himself from his society's preference for patrilineal unions. Instead of choosing a customary heterosexual relationship that will be beneficial to the aliens since he will be fathering children, Gan decides to carry T'Gatoi's eggs in order that he can prove his love for the female alien. When T'Gatoi decides to choose his sister Xuan Hoa as a host human, Gan stops her and expresses his will to bear her young.

Lillvis says that "Butler's mothers invest themselves in caring for their communities" and "work to improve the circumstances of their people by destroying hierarchical power structures and developing more egalitarian societies." (7) Adding to her argument, I would point out that both T'Gatoi and Gan seek to challenge the social order by refashioning kinship. Through Gan, Butler demonstrates "the physical possibility of pregnancy beyond women" (Lillvis 7) and emphasizes the importance of partnership. Gan views copulation as a means to dismantle the view that humans and aliens are mutually exclusive. He emphasizes that changes in the colonial power structure can be brought forth through concrete examples of partnership. Rather than protecting the Terrans (humans) from seeing the stages of labour and birth, they must be shown when they are "young kids, and shown more than once." (Butler 29) Even though "T'Gatoi possesses the power of the phallus and occupies the father function because of her governmental and social authority as well as her physical superiority, including her phallic stinger . . . and ovipositor" (Lillvis 11-12), her role as a biological mother is contingent on her trust in Gan to not hate her young. In his study of the influence of African patterns in African-American families, Herbert J. Foster argues that Black families "are not necessarily centered around conjugal unions, the sine qua of the nuclear family." (231) Herbert J. Foster says "the extensive kinship network" is viewed by them as "a survival mechanism against the destructive and destabilizing impacts of American

society on black family life." (229, 227) The representation of kinship as a thematic concern of "Bloodchild" is further identified by Thelma Shinn Richard, who argues that the text illustrates how kinship beyond biological connections is determined by love. (122) She states that the transformative power of love surpasses the love of power in Butler's short story. Richard's claims are of relevance here. A notable aspect of the short story is the love between Gan and T'Gatoi, who do not share any ontological similarities with each other. Gan's family considers the female alien T'Gatoi to be one of their own family members. In fact, Gan's mother has decided to give one of her children to T'Gatoi. T'Gatoi, who herself feels kinship with Gan's family, redefines the ties of kinship by establishing a harmonious relationship between her and Gan's family. Even though Gan has been T'Gatoi's primary locus of attention since she began participating in all the phases of human development, her endeavour to bring sterile eggs for the other family members speaks volumes about the role as someone who is concerned about the physical well-being of Gan's family as a whole. Her gesture of cold-hearted kindness stands in stark contrast to "the earlier system of breaking up Terran families to suit impatient Tlic." (Butler 5) It can also be interpreted as an effort to rewrite the notion of blood relation as understood by the aliens. She has been playing the role of a breadwinner for Gan's family, giving them sterile alien eggs that prolong human life.

So far as the text's subgeneric context is concerned, Butler's text has the generic symptoms of the alien invasion subgenre. Humans colonizing other planets or aliens visiting Earth to establish their colonies on Earth is a relatively generic aspect of stories about aliens (Jones 109). Alien invasion stories depict the subjugation of the powerless. Besides spatial colonization, the invasion of corporality is a thematic essence of science fiction stories about aliens. Movies like *Aliens*, *Independence Day* and the more recent *Prometheus* have popularized the motif of the evil alien and provide compelling evidence for border crossing while dramatizing violent confrontations between humans and aliens. Credible evidence of border crossing is Ridley Scott's film *Aliens* (1979), which shows how alien organisms kill their human hosts. The other movies also attest to how the human body is host to alien organisms feeding upon it. "Bloodchild" demonstrates similar scenes where female aliens implant their eggs inside the male sexed body:

> T'Gatoi found a grub still eating its egg case. The remains of the case were still wired into a blood vessel by their own little tube or hook or whatever. That was the way the grubs were anchored and the way they fed. They took only blood until they were ready to emerge. Then they ate their stretched, elastic egg cases. Then they ate their hosts. (Butler 17)

A scene like this is violent as there is inexorable demand for men who are at the mercy of female aliens and are killed by grubs. It exposes the reader to the fragility of the human body. Even though Butler's representation of border crossing may seem commonplace, Butler uses border crossing as a means to subtly critique oppressive socio-cultural practices. Let us consider the case of Gan (a human) who decides to become a surrogate mother for T'Gatoi's unborn alien babies. SF, according to Brian McHale, is "intrinsically ontological" (85) because it concerns bodily transgression which is a central concern of posthumanism. Gan's corporeality challenges the limits of the male body and fulfills the claims made by critical posthuman theorists who hash

over the liberation promised by bodily transgression. "So my cyborg myth is about transgressed boundaries, potent fusions, and dangerous possibilities, which progressive people might explore as one part of needed political work," argues Donna J. Haraway drawing upon the figure of the cyborg. (14) Haraway uses the cyborg, which is, of course, itself a familiar SF trope, as a theoretical underpinning and situates it in the context of the digital era. Another theorist of posthumanism, Rosi Braidotti, holds the view that post-anthropocentric practices perpetuated by global capitalism "blur the qualitative lines of demarcation not only among categories (male/female, black/white, human/animal, dead/alive, centre/margin, etc.), but also within each one of them, the human becomes subsumed into global networks of control and commodification which have taken 'Life' as the main target " (64). In a similar fashion, Butler critiques the classical human/alien and the male/female divides in her short story, yet she differs from posthuman theorists in terms of her strategy. Butler's tool is the science fiction genre, which, she argues, has "no closed doors". ("Remembering" 00:03:07-08. The pregnant man, in the text, not only emerges as a science fiction trope but also signals possibilities that may persuade the reader to reframe the non-conflictual category of masculinity. Gan's transgression is twofold—first, by using his body as a womb, he rewrites the contours of the male body; second, he remakes the human body by extending its limits. By hosting the eggs of T'Gatoi, Gan's body bridges the gap between the human and the alien. The convenience of using the body of the colonized man for implantation may be read as an implicit critique of racial segregation that divides colonial society along racial lines. The science fictional representation of Gan's body is an instance of border crossing/bodily invasion providing a critique of binary opposites: colonizer and colonized, human and alien, male and female without reservation.

In the introduction to *The Postnational Fantasy: Essays on Postcolonialism, Cosmopolitics and Science Fiction* (2011), Masood Ashraf Raja and Swaralipi Nandi argue the science fiction is "a staging ground and a launching pad for a radical reconfiguration" (9). Butler's text radically reconfigures our conventional approaches towards embodiment, gender, sexuality, and border crossing. Exploiting the human-alien dyad as a metaphor for the binary of colonizer and colonized, Butler dramatizes the plight of Terrans (humans). Butler's text challenges patriarchal oppression endemic to human society and provides a resolution (pregnant man), which remains essentially speculative. Gan's pregnancy may be interpreted as an act of radical autopoiesis. Factors like race and gender playing a part in constructing the non-white male body is critiqued by Butler through her demasculinized male protagonist, who challenges patrilineality and thus abates the subjugation of colonized women while rearranging the relationship between the ruler and the governed.

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Science and Society in the Long View: Neal Stephenson's Anathem as a Simulation of the Governance of Science

Zachary Gallagher Pirtle[1]

Introduction

What is the ideal relationship between science and society? How do short-term and long-term approaches to research change the dynamics of scientific work? What effect does centralization or decentralization have on the practice of science and its regulation? Are there other ways of organizing the scientific enterprise that could produce better outcomes for society? Science fiction can explore answers to these questions and other aspects of science policy. I propose that Neal Stephenson's novel *Anathem* offers a rich and unique examination of how science and society should relate.

Stephenson has been a longtime student of innovation and of the US space program. He has published articles such as his 2011 "Innovation Starvation" that call for much deeper and long-term thinking about innovation policy. Many look to Stephenson as a source of inspiration for thinking about science policy issues writ large; his 1992 novel *Snow Crash*, for instance, is often cited for its portrayal of an online metaverse. However, *Anathem* offers significant fodder for a broader reflection on science and policy, as Stephenson carefully thinks through an alternate way by which science and society could relate, with a particular focus on how science and society would interact across many thousands of years.

Stephenson's consideration of the long-term impacts of science and how to govern it raises questions that are not well captured in broader science policy literature. In this paper, I first discuss how science and engineering policy shapes how science and society relate; then I summarize research approaches that examine how science fiction can help improve the scope and practice of science policy, in particular by informing our imaginations to reflect on what world we want to create. Then I discuss *Anathem* as a science fiction novel of grand scope about scientist monks who live under a drastically different science policy infrastructure, and I review the book's backstory of thousands of years of struggle between civilization and science. I conclude by exploring how the book's denouement gives conflicting answers about how science and society should ultimately relate. While Stephenson might describe the policy implications of his book as "impressionistic," *Anathem* offers readers a thought experiment to imagine vastly different approaches to science policy—and should be celebrated and recognized as such.

Science, Technology, and Engineering Policy Shapes the Future

Many science fiction readers and scholars track updates in science and engineering, and many are scientists and engineers themselves. Less commonly explored in science fiction and

among its readers are the institutions and policy choices that shape what scientists and engineers actually do. There is a constellation of people who "do science policy" by shaping the approaches, resources, and culture of science and engineering. These professionals include staff at federal agencies[2] such as the US National Institutes of Health; Congressional and Presidential staff engaged in science and technology policies and legislation; ethicists, anthropologists, and science, technology, and society (STS) scholars who study the conduct and practice of science; program officers at philanthropies, investors, and other funders; as well as many other decisionmakers who shape how science is used to perform missions like national defense, water remediation, disaster preparedness, etc.; along with innumerable others. I colloquially refer to all these people as "science policy practitioners," while also embracing science policy scholar Daniel Sarewitz's holistic approach to defining science policy as shaping the outcomes of science by interrogating its values and inputs (Sarewitz 2007).

The aspect of *Anathem* that I focus on here is the story's depiction of how science and society should relate, a topic long examined in science policy research in part through discussion of a "social contract for science". (Guston 2000a, Kevles 1995) Such a social contract addresses the question of how the collective science community—in which I include, along with scientists, both engineers and technologists, who may outnumber scientists themselves—relates to and potentially serves society.[3] Given that the public sector is often the primary funder of science, society can reasonably expect benefits now and in the future in exchange for funding and support—but there are deep debates on what the nature of those benefits should be and when they should occur.

The idea of what benefits and responsibilities are entailed in a social contract[4] can be quite broad and occur over a range of timespans. Science policy in the United States after World War II invoked one vision of the contract: Taxpayers would support curiosity-driven research at universities, which would provide new insights that are intrinsically worth knowing; some of that research would yield results that could be translated into social benefits such as solving a specific societal problem, creating a useful new technology, or generating economic activity.

The process of deciding what science and engineering is sufficiently beneficial to be worth funding is complex and often highly uncertain. Scientists can disagree about whether a piece of curiosity-driven research is actually worth knowing, as well as disagree about what the practical benefits of research will be in advance of—or even after—a research program's completion.[5] Funders and researchers who seek practical benefits do so with a range of desired timespans as well, with some seeking a quick return, which could be economic or societal, and others looking for some promise of future benefit.

We need different conversations about how science and society should relate. Political scientist and science and society scholar David Guston called to retire the social contract for science, to move beyond vague ideas of mutual obligation and assumedly-guaranteed benefits and to instead find ways for people and institutions to better collaborate and get better outcomes. (Guston 2000b).Guston overviewed how the US Congress began to impose oversight on the institutional

design and grantmaking process for scientific and engineering work, creating "boundary organizations" that link science organizations and political groups (Guston 2000a). More recently, the 2022 CHIPS and Science Act calls for the National Science Foundation to more proactively encourage engagement with "ethical and societal considerations" of its funded research.[6]

Oversight and getting results for a given area of science can depend greatly on the nature of the activity. Sarewitz and Nelson argue that some areas of science and engineering struggle to make long-term progress, such as with health care outcomes, and that exponential efficiency akin to Moore's Law in semiconductor development is not possible in most industries (Sarewitz and Nelson 2008). This raises questions about how to actually make technical progress across the long-term. Research on responsible innovation and innovation studies more generally has been working to explore better ways to shape science policy for public benefit across all industries, for longer-term benefit.[7] However, very little of this literature focuses on how science and society might relate into the very distant future.[8]

There is one extreme of the science and society debate that is worth keeping in mind when reading *Anathem*. Michael Polanyi's "Republic of Science" (1962) argued for the independence of science. Polanyi contended that science inherently pursues objective knowledge, and that this pursuit should be supported and funded seemingly at any cost. This perspective is echoed in contemporary calls to significantly increase funding for scientific research,[9] reflecting a belief in science's transformative potential. Polanyi claimed that the scientific community operates as a self-organizing system. He argued that scientists, through informal networks and communication, are able to track each other's work and collectively guide the direction of research, with each researcher focusing on problems suited for their skills. This regulating process allows the scientific community to allocate its resources efficiently and focus on problems best suited to individual and collective expertise. Polanyi's vision places trust in the motivations and collaborative nature of scientists to assume that they will advance knowledge without the need for external controls or directives from government. There are many critics of this idea, who note that scientists can be inefficient with funding when left to their own devices, and that in a democracy, all funding should be tied to legitimate elected leaders (Guston 2000a). Further, if Nelson and Sarewitz are right that some areas of science are making little progress, this might be evidence that Polanyi's vision of independence may not work as he hoped.

Science Fiction as a Way to Explore How Science and Society Should Relate

Science fiction can be a great boon for debating how we collectively should want science and society to relate. Several policy scholars have called on science fiction to help imagine and think through future policy choices about science. Notable contributions to this tradition include Miller and Bennett (2008), York and Conley (2020), Finn (2025), Fritzsche and Soldner (2025), and Older and Pirtle (2019).[10] This approach does not focus on the predictive accuracy of science fiction, but instead highlights the genre's utility as a tool for exploring the values and principles we might wish to apply to future decisions about science. Older and Pirtle, for instance, discuss using

science fiction stories as informal simulations, exploring how things might be different if society were composed differently and/or if technologies were shaped and built in different ways (2021). Reflecting on such alternatives can be extremely useful for the governance of science, with science fiction stories serving as proxies for and thought experiments about deeper governance principles, philosophies, and worldviews.

Neal Stephenson's *Anathem* as a Simulation

Neal Stephenson's science fiction novel *Anathem* (2008) provides a rich analogy and an informal simulation tool for exploring the relationship between science and society. Stephenson's technical depth and research, along with his focus on long-term progress in innovation, has made his work of particular interest for some science and society researchers. In *Anathem*, he describes scientist-monks living apart from society in separate disciplinary conclaves called "maths," with their work and existence a point of tension over the thousands of years of backstory described in the book. Its length, approaching 1,000 pages in various editions, reflects its ambitious scope.[11] Here, I will make only indirect references to general plot points that will not spoil the story for a prospective reader. Instead, I focus on the background of the book's world and how that might inspire us to think more deeply about science and its relation to society.[12]

While some science fiction examines various permutations of how scientists exert control or are controlled by society,[13] as well as how they relate to society, it is rare to encounter a work in which this relationship is central to the story, as it is in Anathem. And yet very little attention has been given to the novel as a science policy allegory (although I did write on this topic back in 2011). Interestingly, while Stephenson extensively explores philosophical influences in the book—recounting the history of Western philosophy from Thales and Plato to Kant and beyond—he does not explicitly discuss any influences on his science policy framing in the novel. It would be fascinating to know his influences, though he has had sufficiently deep engagement on innovation policy to indicate that he is a serious thinker on the topic.[14]

Anathem conjures a world in which scientists are kept apart from society, with strictly governed yet volatile connections between science and society. The scientists in *Anathem* are largely independent, yet they seem to relentlessly deliver new technology and theoretical insight, despite efforts by society to regulate them. It effectively is the Republic of Science that Polanyi sketched out, where the maths have autonomy but one whose political status and power in contrast to the outer world is changing greatly over time.

Background on the Mathic World of Scientist-Monks

Many reviews of *Anathem* discuss the eccentricities of the scientist-monks that exist on the fictional world of Arbre. These monks—called the "avout"—can be imagined as a cross between members of a religious order and university professors or students with varying levels of expertise and types of research. Their collective community is called the mathic world. The avout live behind walls, separated from the outside, "Saecular" world, in self-sufficient villages called

"concents." The avout must take vows that in some ways are absurd,[15] including becoming sterile and forgoing life with families outside the maths. They are taught that the outside world has varied preconceptions of who they are and what their intent is.[16] Their primary goal and purpose is to perform research and create new knowledge. Many of the people inside the maths have additional practical skills and hobbies that are often useful, such as farming, craftwork, and others that enable their basic needs to be met. This seems to help the maths be economically self-sufficient, although they surely occupy valuable stretches of land and buildings.

The Saecular world has overthrown the mathic world many times, especially when technologies developed in the maths cause trouble and disruption for the broader society. The characters in Anathem emphasize on several occasions that the maths are only permitted to exist on the sufferance of the Saecular world, even though the avout live outside the Saecular legal system. The protagonist narrator of the book, a young avout named Erasmus (or "Raz"), pointedly refuses to discuss the dynamics[17] and politics[18] of the Saecular world, (445) which he views as too fickle and changing to be worth describing, whereas the mathic world persists always as a realm focused on intellect, contemplation, and scientific inquiry.

The book's focus on the separation of the maths from society is what made me interested in Anathem as an informal simulation for considering science policy. The sites of the avout are partitioned into different kinds of maths, based on the level of focus and depth of the research questions of the avout inside. The different maths operate on a series of time scales at which point they open their doors to the Saecular world and to other maths to share their research and potentially bring in new avout. There are Unarians, whose maths open their doors to the world and allow for exchange with the outside world every year;[19] Decenarians, whose maths open every 10 years; Centenarians, whose doors open every 100 years; and Millenarians, whose doors open every 1,000 years. These maths are not only isolated from the outside world but also from each other, with one of each kind of math being located at a single monastery-like site but kept in separated wings.

The supposed purpose of the time-division of the different maths is to allow researchers to focus on correspondingly longer-term problems. The Unarians' focus allows for study across a few years doing things such as writing theses summarizing research about cosmology, taking astronomical observations. Those who attend these Unarian schools are akin to students pursuing undergraduate education in our world, . The Decenarian maths have a deeper focus on long-term problems, perhaps akin to advanced graduated students and early-career faculty. Erasmus, the protagonist, belongs to one of these maths, and he and his fellow Decenarians do astronomical observations and analysis, even more detailed literature reviews, and other activities that feel similar to those of graduate school in real-world universities. Different maths can study the same topics. Erasmus's Decenarian math contemplates the "polycosmic" nature of a multiverse—a key topic of the book—which is also studied in Centenarian and Millenarian maths.

The Centenarian and Millenarian maths are said to have a deeper research focus on longer-term problems, but the specifics are not fully explained; the Millenarian math, especially, becomes a bit more fantastical than real-life science. Sometimes the long-term focus of the maths can go awry. For instance, there is a phrase, to "go hundred", (229, which describes when Centenarian maths open only to reveal that everyone has either gone insane, disappeared, or is dead—apparently driven mad by their isolation.

The only Millenarian character in the book is Fraa Jad ("Fraa" is a title akin to "Friar" or "Brother"), whose intellectual prowess and ability to see across multiple worlds is described as immensely powerful and becomes essential to the plot of the book. Some avout who live in the Millenarian maths are revealed to have longer lifespans, achieved perhaps through a type of research and self-reflection.[20] This longevity surely enables much longer-term study and focus, but it doesn't illuminate what it means to have thousand-year research projects. There are other ways in which the Millenarian maths are supernatural: the protagonists discuss a centuries-old appearance of a mythical creature's body[21] inside a parking structure, for example, is attributed to the transformative abilities of Millenarian scholars. The fear of such power by the Saecular world was then cited as a reason for a "sack," or the takeover and reform of the maths by the outside world.

Thousands of Years of Science-Induced Civilizational Rise—and Collapse

The timeline of the *Anathem* universe is fascinating for how it portrays the relation between science and society. The timeline suggests that the story might be approximately 3,700 years in the future, and the book makes various oblique hints that the world of Arbre is more technologically advanced than our own.[22] Our current era would align with the end of what the book calls the "Praxic Age," which corresponds to a period beginning with the Industrial Revolution. (297, 328, 372) While the Praxic Age had great technological advancements, the world of Arbre had several technology-induced calamities that ultimately led to civilizational destruction and collapse.[23]

Arbre society then underwent a period of reformation known as the Reconstitution, which redefined the relationship between science and society by instituting the separation between maths and the Saecular world described above. The Reconstitution was so important to Arbre society that they remade their calendar year to be year 0 in the mathic timeline. However, the science-society relationship continued to evolve significantly in the millennia before Anathem's plot begins. Even with the maths separated from society, new technologies continued to emerge from them that disrupted Saecular society, leading the Saecular world to sack the mathic world and impose new regulations. Each sack resulted in changes to the science-society relationship. The sacks included[24]:

First Sack

Technological cause: The avout create "new matter," materials with atoms possessing slightly different atomic masses and emitting different wavelengths of light, causing the

laws of physics to function differently. New matter enables the creation of revolutionary artifacts and tools of incredible strength and lightness, but it disrupts society, leading to the First Sack.

Change in Science-Society Relation: New matter's use is heavily regulated, with the Saecular world controlling new matter production only in limited facilities outside of the math.[25] A mathic entity known as the Inquisition is established to monitor compliance with these regulations.

Second Sack

Technological Cause: Maths begin engaging in gene-sequencing work, or what Erasmus refers to as "syndev," apparently a portmanteau of "synthetic developments." While not explicitly described in the story, this research evidently leads to the creation of potentially dangerous life forms or diseases that disrupt society.

Change in Science-Society Relation: After this event, additional rules are imposed on the maths, ensuring stricter oversight of their activities and removing any significant research infrastructure outside of astronomical observatory tools.

Third Sack

Technological Cause: Some Millenarians, who became known as Incanters (seemingly akin to wizards (53, 69)), develop the ability to create matter—even without scientific infrastructure and research equipment. The Saecular world becomes dismayed when a previously non-existent dinosaur mysteriously appears, fused into a construction site.[26]

Change in Science-Society Relation: Incanters seemingly stopped existing, though the exact change in science-society relations underlying this is unclear in the book. The backstory raises questions about whether some of the inciting research still continued to occur—after all, it's hard to regulate or prevent people from merely thinking—though the plot of the book does eventually provide more details.[27] Three of the oldest Millenarian maths (the so-called Inviolate maths, which were never sacked) that had maintained nuclear waste continued to exist. The book implies that these reforms were enforced after the Sack, though it also hints that an external group was allowed to form outside the maths that pursued research about Platonic ideals. This group's research focus on the multiverse sets the stage for the book's climactic events.

Aspects of the Society-Science Relationship in *Anathem*

The timeline of the mathic world shows a complex relationship between the maths and the Saecular world. This section highlights a few other features of the science-society relationship. They illustrate the thoughtfulness that Stephenson put into his work—but they also raise questions about how separately science and society might be made to act given the long-term perspectives.

Service to Society in the History of the Maths

The maths have come together in the past to help humanity defend against an external threat. When such threats emerge, a "convox" is summoned bringing together leaders across the mathic world. One past convox is described as occurring when an asteroid was projected to impact and likely destroy life on Arbre. (95) The avout worked with the Saecular world to design a spaceship that would travel to the asteroid and deflect it. When it later emerged that the asteroid would narrowly miss the planet, the deflection mission then became a research mission. But the ability and precedent to draw upon the avout to solve problems was a clear sign.

Another such convox occurs as a key plot point in the book, in response to dealing with an external invasion. An interesting nuance in the science-society relationship emerges when the book discusses the views of the Saecular leaders who attend the convox and are trying to understand the avout's deliberations. It's mentioned that many in the Saecular world have had concerns on whether the massive amount of resources spent on the avout's convox were worth it.[28]

"Big Science" vs. "Decentralized Science"—and How Efforts to Regulate Science Seem to Fail

The cyclical history of the maths, where regulations follow excesses of scientific and technological progress, ties well to real-world discussions about "big science" versus "decentralized science." Much scientific research takes place in huge, infrastructure-intensive facilities, such as the European Large Hadron Collider or the US National Laboratories. In *Anathem*, the Saecular world's regulation of the maths increasingly deprives the avout of access to that kind of major experimental infrastructure, leaving them with little more than their own intellectual capabilities and ability to observe the cosmos.[29]

Despite being forced to do a form of decentralized science, the avout manage to conduct incredible research through rigorous dedication to their work. The moral for real-world scientific and engineering progress is ambiguous, especially as the progress that occurs in the book takes thousands of years. Most scientific leaders would assume that scientific progress could not occur under *Anathem*'s restrictions against infrastructure and continuous information sharing, but there are likely some areas of real-world research that could be aided by the long-term discipline of the maths.

Reframing the Science and Society Relationship

Science Saves the World and Becomes Coequal with the Saecular World

The *Anathem* plot ultimately leads to a reframing of the social contract for science of the world of Arbre, where the avout are no longer sequestered into a separate world of mathic settlements. This happens after a Millenarian uses the benefits of deep research on the nature of worlds in order to end a major invading threat to civilization (which I'll only discuss in footnotes to avoid spoilers).[30] The ending establishes two distinct but equal "Magisteria" or authorities on the planet Arbre, with one Magisterium being leaders of the Saecular world and the other being the leaders

of the avout. As a character says at the end, "'Behold.… There are two Arbarns on that vessel, of coqeual dignity. Such a state of affairs has not existed since the golden age of Ethras. The walls of Tredegarh [a mathic concent] have been brought down. The avout has escaped from their prisons. Ita, a group previously segregated from avout to focus on information technology] mingle and work by their sides" (942). Such language by an avout-related scholar shows the perceived depth of the reordering of the science and society relationship, with science moving from a subordinate to an equal position.

However, the book ends before it describes how the new science and society relationship will emerge in the reconstituted world. The protagonist, Fraa Erasmus, plays a critical role in setting up what the new world will look like. The epilogue describes him setting up a new settlement in honor of Saunt Orolo (with the honorific being the book's form of "Saint"). In the reconstitution, Erasmus states that avout and non-avout would be able to enter and leave the maths at will, and that families can be close to those inside the maths. All of the avout could now socialize at the same bar, marry, and regularly share ideas, both across maths and with the Saecular world.[31] The protagonists seem blissfully unconcerned about the rapid reconfiguring of how science and society relate in their world. They are perhaps a bit like practicing scientists and engineers who like to just do their work.

The protagonists in the epilogue do mention thinking ahead about the need to defend themselves several centuries into the future.[32] It seems likely that many restrictions on technologies such as new matter will remain; as the avout continue their work in this new world, Saecular leaders may even need to create new restrictions. I'll leave major spoolers to a footnote, but the avout do also partner with the saecular work on a massive science and exploration project, committing to sending out their own space ark into the universe, on a mission vastly more complex than the Apollo program.[33] There is little discussion about who will fund such exploration, much less the livelihoods of the maths or of the new settlement that Erasmus is establishing, especially if the maths are allowed to create expensive new research infrastructure again.[34] It does seem implied that the Saecular world will more directly fund some of this work, especially the work to increase activities in space, since otherwise such an a space ark exploration effort would be difficult to implement.

Considering Anathem's "Final" Science and Society Relationship

What then should we make of the central social structure of *Anathem*—the maths, partitioned by time and divided from society, strictly regulated by government, and yet enabling regulated and beneficial progress? The tensions produced by these forms of separation—physical, temporal, disciplinary—simmer throughout the book, having shaped the governance of the avout to regulate risk to society but also ensure some focus on long-term thinking. While the world of *Anathem* takes the idea to an extreme, its subdivision and regulation of science resonates with real-world issues today.

What does this ending really mean about the book's revision to the science-society relationship? When I first reviewed the book in 2011, I interpreted Stephenson's move as a plea to elevate the status of science and remove restrictions placed on science. It seemed to me that the book embodied Polanyi's Republic of Science. By the end of *Anathem*, the limits imposed on the avout are gone, especially as the powerful Centenarians and Millenarians can share their insights outside the math (and with each other) at any time. This is a major reversal to the worldbuilding backstory leading up to the events of *Anathem*.

There have been comparable debates in the real world about the status and governance of science. Prior to World War II, US federal funding for science was minimal, with private foundations leading the way. As the country emerged from the war, the sense that scientists and engineers helped to win it through military systems and the atomic bomb was pervasive. Many science policy histories recount how the then-US science policy advisor Vannevar Bush published *Science: The Endless Frontier*, which emphasized the importance of long-term, curiosity-driven research that operates largely independently of societal pressures, but is still supported by the government. Such research was projected to always provide future benefits to the US national interest. Bush himself also advocated for the (eventually successful) creation of the National Science Foundation (NSF).

This marked one of the highest profile debates in US history about who should control funding for science—presidentially appointed political appointees or scientific experts chosen by their peers. A compromise was eventually reached, in which the president appointed the head of NSF but the management of the agency was shaped by well-respected scientific leaders, giving some measure of autonomy.[35]

Anathem's "coequal" level of scientific autonomy is an extreme—akin to making scientific leaders equal to democratically elected ones, and putting them far above leaders in other areas of society, such as religion, entertainment, or culture.[36] This is a status never (openly) dreamed of in real-world science policy frameworks.

Is the Second Magisterium for Science Really a Militaristic Ploy?

On my 2024 rereading of Anathem, I paid closer attention to Emman, the young secular military leader who befriends Erasmus.[37] When Emman introduces the concept of the two Magisteria, comprising the separate leadership of the scientific world and the Saecular world, he notes how societal restrictions against the avout doing research contributed to the planet's insufficient scientific and engineering resources to respond to invaders. After recounting the history of societal restrictions on the maths, Emman says:

> Turned out that all we'd been doing was losing the arms race to cosmi that hadn't imposed any such limits on their avout. And guess what? When Arbre decided to fight back a little, who delivered the counterpunch? Our military? The Sæcular Power? Nope. You guys in the bolts and chords [the dress of the avout]. So the Antiswarm [avout community] has

garnered a lot of clout just by doing a lot and saying very little. Hence the concept of the two Magisteria…(933)

Emman describes Arbre as being in an arms race with worlds in other dimensions and stresses the importance of ensuring they do not overly restrain themselves. He emphasizes how much the avout were able to achieve during the crisis that saved the world, and how they did so with humility and seemingly low levels of support. (It is perhaps hard to imagine leading scientists and engineers in our world being willing to so prominently help society while "saying very little.") Further, the two Magisteria decide to partner on sending an ark to explore other worlds, which is an ambitious project with scientific and potential military implications.

Given this, my interpretation from 2011—that the book was advocating an unfettered embrace of science—doesn't seem aligned with Stephenson's actual intent. A more nuanced reading might suggest that the creation of the coequal Magisteria was partly to ensure unfettered research while addressing a very real threat. This ties into a long-standing debate about the extent to which military policy and geopolitics drive science policy decisions—and whether that is appropriate.

If the primary reason for establishing the community of maths as a coequal Magisteria is the protection offered to the rest of Arbre by the Millenarians, then this is not a permanent framework for how science and society should interact. It is an end-state for how science and society should interact in a moment of prolonged military crisis—something like the Cold War.[38] It also raises questions about what we should do without the threat of some impending conflict. The once-in-a-lifetime threat of invasion does seem like it might be a uniquely crystallizing force that would unify politics. Could such a unification continue to last for decades—much less thousands of years?

Conclusion: Alternative Science-Society Simulations Suggested by the *Anathem* Plot

Stephenson's Saecular world appears to have embraced a Cold War framing to motivate future scientific research. Such a reading is relevant to our world today. Given that Stephenson's book looks at a future civilization across thousands of years, and given his savviness about the history of real-world innovation policy, it is humbling to consider that his primary rationale for the long-term support of science might be based on a military rationale such as the Cold War, though cultural and scientific desires are also embodied in the space ark project. However, despite this militaristic conclusion, the history of Arbre's regulation of science and engineering connects with contemporary efforts to acknowledge and explore the ethical and societal considerations and impacts of science.

What would have happened if science had not become a coequal Magisterium? This offers a fascinating chance to informally simulate an alternate outcome for Anathem, supposing that world were no longer subject to a military threat. Other rationale for greater liberation of the avout could have been prioritized, such as the inherent desire for knowledge, the desire to create better quality of life on Arbre, or the broader exploration of the Arbrean universe.[39] One could imagine taking

any of those rationales, and then exploring how that desire and rationale for continued Saecular support of the mathic world would change over time? How would that relationship evolve over the course of thousands of years? It's a thought experiment worth consideration.

The recurring focus on the long-term future of humanity in Stephenson's work—to prevent its fall and to focus longer term research among the Centenarians and Millenarians—does hint at a belief about progress in technology that can arise when enough research and attention is focused on a topic.[40] This aligns with Stephenson's work on Project Hieroglyph, in which he authored a story about creating a 10km-tall space launch tower on Earth, focusing on the myriad of policy, management, and cultural challenges that needed to be overcome to build such a tower (see his paper in Finn and Wylie 2014. There is a strange tension Anathem about whether progress on 1,000 year–level problems is achievable without significant spending on centralized scientific infrastructure, which the book's epilogue does not hint at.[41]

The brilliance of Stephenson's novel lies in its exploration of long-term thinking and deep research problems framed in the context of a continuously strained and risk-laden relationship between science and society. These tensions are clearly shaping how science is organized and managed in *Anathem*, which is in turn shaped by the history and culture perceptions of the avout. While the book is most famous for its reconstruction of Western philosophy, it is also perhaps one of the most interesting simulation tools for imagining different approaches to science policy than the ones implemented today.

Notes

1. The work for this paper was performed in a personal capacity. Opinions expressed in this paper reflect the views of the author and do not necessarily reflect NASA or the United States Government. I am also grateful for a draft review of this by Jonathan P. Lewis, Michael Bernstein, Ryan Faith and for past collaboration with Tind Shepper Ryen. I am deeply grateful for many thoughtful comments and suggestions by Jay Lloyd that greatly improved the paper.

2. I am largely writing for a US federal science policy context, recognizing that there are many similarities and differences across countries.

3. Funding from "society" can occur directly through grants, agreements and contracts with federal agencies, or there is a large degree of private sector funding and acquisition, much of which can also indirectly supported by federal tax breaks or investments.

4. Such a social contract is often implicit, and rarely formally written out in a formal agreement by representatives of science and society. However, much of the legislation supporting science in the United States is framed by legislation passed after consulting scientific leaders. The research goals of such legislation then get translated down into specific funding calls that describe what work should be done, and that scientists then propose to do.

5.   There's a broad range of science policy research that explores facets of these topics. Kitcher 2001 highlights how social processes can shape what is deemed to be scientifically significant or not. Bozeman and Sarewitz 2011 provide a framework for doing case studies on how science leads to societal outcomes. Pirtle 2019 discusses history and challenges that have arisen from efforts to track the benefits of R&D in a specific industrial context. There's increasingly more research about the role of hype in the rhetoric used to advocate for funding of new projects (Roßmann 2021), which makes it more challenging to ascertain real benefits.

6.   Per Guston 2023, "Section 10343 of the act, entitled "Research Ethics," mandates that NSF engage with the "ethical and societal considerations" of the research it funds. It conveys "the sense of Congress" that "emerging areas of research have potential ethical, social, security and safety implications that might be apparent as early as the basic research stage.… [The incorporation of such considerations] into the research design and review process for Federal awards, may help mitigate potential harms before they happen."

7.   One could explore publications in the Journal of Responsible Innovation, IEEE Technology and Society, or work in the Issues in Science and Technology journal for examples of considering societal impact more deeply. For work on achieving greater innovation success in the long term, Research Policy and IEEE Transactions on Engineering Management have more resources.

8.   Gordon 2017 explores long-term changes in US innovation growth and recent efforts at understanding "progress studies" touch on the issues. However, a discussion of the very long term doesn't occur in much of the science and society literature, such as Guston's work above. This may be understandable, due to the priority of paving new paths in the here-and-now, but it does reflect opportunities for using science fiction to explore what an ideal future state might be.

9.   Sarewitz 2007 discusses one set of calls to double the budget of the US National Institutes of Health, but he then provides historical context: in almost all cases the research and development budget of the US government merely increases at the same rate as inflation. NAS 2007 also represents a similar call.

10. There is a long-standing tradition of using philosophical thought experiments—such as Plato's Republic—to envision what an ideal society might look like. John Rawls and Philip Kitcher's work, especially the latter's *Science, Truth, and Democracy*, are in this vein. Building on this tradition, some recent efforts have applied similar thought experiments to science itself, asking what an ideal scientific enterprise should entail and what kind of science ought to be prioritized. These explorations challenge us to rethink the societal role of science and to consider how its goals, methods, and outcomes might better align with public needs and values.

11. For this research paper, I will reference the Kindle edition for consistency in page numbers.

12. Others have mentioned possible connections between Stephenson's Anathem and Walter Miller's *A Canticle for Leibowitz*, which looks at a religious monastery as thousands of years go by after the fall of civilization. I've not done enough research to know how or to what extent Stephenson viewed that book as an influence – it does not appear in his acknowledgments.

13. Asimov's Foundation is another example of a group of separated scientists who think deeply on their societal impact and receive pushback from broader societal groups.

14. Stephenson has made numerous comments about innovation policy in other contexts, emphasizing the need for greater societal focus on innovation. Notably, he participated in a debate in 2010 with Arizona State University President Michael Crow, discussing whether science fiction authors were doing enough to inspire society to tackle pressing challenges. This debate took place shortly after the publication of *Anathem*. and led to Stephenson partnering in ASU's Project Hieroglyph project to write science fiction that could inspire a more ambitious future. Stephenson has also served as an advisor to the aerospace company Blue Origin, including during the time when Anathem was likely written. His social connections to influential thinkers such as Danny Hillis and Stuart Brand—both of whom are prominent in Silicon Valley—may have inspired the depiction of the ITA (Information Technology Administrators) in the book.

15. The avout are prohibited from having children and from maintaining regular contact with family or loved ones outside the maths. They live under the potential fear that the saecular world might decide to invade. Perhaps these exaggerations reflect some of the views and real-world sacrifices that scientists and engineers have or make, where it's often seen that a life dedicated to research comes at a cost of family and personal connections, with funding support from the state being difficult but attainable. The avout have to also follow rules that are more mundane, such as being forbidden from drugs that can change the state of the mind, to needing to follow rituals of prayer and community behavior, and more.

16. There is also a fascinating discussion about "iconographies"—the study of the ways in which the avout are perceived by those in the outside world. (71). Some observers describe the avout as creators of risks that could run amok, hoarders of hiddn secrets, or as silly and irrelevant figures. These perceptions significantly influence the perceived and potential value the avout might bring to society, and the young protagonists are taught to identify how those in the outside world are perceiving them based on these narratives.

17. The one exception to this is that a religious zealot, the Warden of Heaven, is portrayed as a disruptive leader, whose political clout is so advanced such that he is the first one to be sent over to meet a major invading threat (483). A minor spoiler: His comical death in the book (893) takes on further meaning when the subsequent saecular leaders seem to be much more akin to technocratic or military leaders on Earth.

18. My colleague Martin Stacey shared with me his reading that the world of Arbre doesn't appear to have deep inequities, and we may have more insight into the broader politics of the

saecular world than one might suppose. I'm uncertain, as we only see very limited glimpses of the world, and the world we see still has dire events, such as smugglers taking people across borders.

19. The book briefly teases (without explanation) that there are "pinprick maths" outside the walls of concents, consisting of rooms in the saecular world where an avout sits and tirelessly performs research. (168)

20. Others interpreted Jad's longevity as tied to his proximity as a thatcher to protect the nuclear waste on Arbre.

21. 469; the writing makes it unclear if it was a dinosaur or an actual dragon.

22. While there are occasional advanced technologies, such as a "new matter"-based, highly versatile spacesuit that can operate in space for seemingly weeks, my colleague Ryan Faith noted that most of the technology described in the book seems very familiar to people on Earth. This offers another way in which the book is deliberately an exploration of a "long now."

23. The book hints that climate catastrophes and wars occurred but states that the key details were lost (see the glossary entry on "Terrible Times"). The book states that nuclear waste was stored—and remained potentially reconstituable for use in weapons—in a few of the Millenarian maths, which becomes a minor plot point in the book. The history and rationale for this sequestration is never fully explicated. One might suppose they were kept in the maths to ensure that the waste and weapons could be maintained by experts, and perhaps as a play by the maths to maintain some power over the saecular world?

24. The best and most concise summary of the timeline for these sacks is described in a late discussion between Emman and Fraa Erasmus (933–935). The glossary also provides some definitions.

25. Somehow, the Saecular world is assumed to have regulated itself (!) and its use of new matter, though this is not explored.

26. A mild spoiler: The "polycosmic" or multiverse-like nature of reality led the Millenarians to develop the ability to tie into multiple timelines of the universe. This becomes pivotal to the final plot resolution, as the Millenarian Fraa Jad helps ensure the success of the protagonist's mission across many dire challenges.

27. Another mild spoiler: The book eventually reveals the existence of the Lineage, a group focused on understanding the nature of reality and how ideal forms may propagate across different strands of a multiverse. The conclusion (934, 942) suggests that the Saecular world had enabled the Lineage to operate both within and without maths, and that there had been a secret agreement that the Lineage and its members in maths would help in times of great need. Fraa Jad was secretly given a key detonation device by the Saeculars (as said by the character Emman, 935) which suggests such a partnership.

28. For another discussion on the cost, see 297.

29. One particularly fascinating aspect is the continued use of astronomical observation. While the avout lack access to advanced laboratories or experimental tools, they still engage in the study of the cosmos as a way to test and refine their theories. This reliance on celestial phenomena underscores the resourcefulness of the avout and highlights the enduring importance of astronomy as a discipline that requires minimal infrastructure while addressing profound questions about the universe.

30. A plot spoiler: Given that the mathic theories about alternate universes is shown to be true when an invading alien spaceship seeks to conquer Arbre, there was deep uncertainty about whether the Arbrean Saecular world and the mathic world could combine forces to stop the threat. The young protagonists and a mix of older avout, including the Millenarian Fraa Jad become part of a last-ditch attempt to board the invading space ark and find a peaceful resolution. They seem to stay continually on the brink of disaster and keep moving forward to finally reach the space station, though the crew members have dreams that some among their number had been killed, including Fraa Jad. Eventually they make it to the alien space ark, board it, and face challenges adapting to the atmosphere. Fraa Jad and the Fraa Erasmus at one point awaken together, and Jad reveals that he is able to extend his mind into multiple branching worlds stretching out from their initial mission. While some crew members had died in some of those scenarios, he was able to seemingly blur those worlds together to keep the crew there alive. He then guides Fraa Erasmus on several sorties, including a visit to meet with the leader of the invading army. Fraa Jad then seemingly resets the timeline, but the invaders themselves have nightmares about Jad's ability to shape, and they began to deeply fear the Millenarians. The book describes Jad's abilities as a form of praxis (technology) that is a result of his group's dedicated research. As such, it is research that is described as having saved the day. See footnote [currently 26] for slightly more information.

31. Would such intermingling undermine the ability of the Millenarian maths to have their deep long-term focus? I think likely so, but, as noted elsewhere, it's hard to imagine what the Millenarian research framing problem really is.

32. Indeed, as Jonathan Lewis reminded me while reading this draft, Fraa Erasmus and his team were designing in placeholders for gun mounts into their new Concent of Saunt Orolo, preparing for times hundreds of years in the future when the math may need to defend itself. It raises interesting questions about what a steady state balance between science and society might look like.

33. Following up on other spoiler footnotes: after the invasion of humans from alternate versions of Arbre, several of the alien visitors wish to continue to explore into future dimensions, and some from Arbre seek to join them. They hope to explore if the next universe they visit will be sufficiently advanced such that they can gain insight on what caused the events of Anathem to take place. Such an expensive mission is admitted in the book to be a massive undertaking but also potentially one needed for defense against future interdimensional interlopers who might

come to attack Arbe. The rationale for the ark mission is thus a mix of cultural desires (to continue exploring the multi-verse), scientific desires, and security/defense desires.

34. I think the epilogue is silent on whether any future restrictions against the maths having powerful scientific and engineering infrastructure would continue. The new site Erasmus and Arsibalt are constructing has a workshop but no seeming scaling for a large scientific manufacturing site or the like.

35. Significant debates occurred between Bush and Senator Harley Kilgore about to what extent the political leadership of NSF needed to be appointed by the president. Bush opposed such an approach, but Kilgore won out in getting a politically appointed leader from the president, rather than letting scientists decide.

36. While I and others often refer to the avout as scientist monks, highlighting the religious similarities between the avout and real-world religious monks, it should be noted that religious groups exist in *Anathem* separate from the avout, such as the Christian-seeming Ark of Baz. While the avout's dedication may perhaps be religious in nature, they exist separate from religious groups, and as such organized religion is effectively excluded from the book's concluding dual Magisteria.

37. Emman also provides some of the clearest dialogue about the historical back-and-forth between the mathic world and the Saecular authorities, which is the basis for my timeline discussion above. He seems like a reliable source for understanding why the Saecular world created the coequal Magisteria.

38. Continuing the spoiler footnotes: the resolution of this 'Cold War' in Arbre might also not conclude on any short time-horizon, as the lingering threat of additional inter-dimensional visitors might not occur for thousands of years. As for sending of a space ark to explore other cosmi, the book only lightly develops the rationale for doing so in its prose, and it's not a focus of the protagonists in the epilog who go about setting up a new Math. Perhaps it is akin to the world taking on the most ambitious possible scientific project, transcending a military context, though it is seemingly still undertaken in the context of knowing whether other cosmi might pose a threat to Arbre.

39. The decision to partner on exploring a new ark to the multiverse is perhaps fairly similar to this vision for space exploration. This also oddly maps with the series finale of the *Star Trek: Lower Decks* TV show in 2024, which has a group of Starfleet move from exploring new parts of our universe to explore alternative ones.

40. The book implicitly focuses on physics—and a deep focus on its 1,000-year problems—to the partial exclusion of other areas of science such as biology or the social sciences. It would be interesting to imagine what the plot of the book might be if another area of science took to the fore. There are also interesting questions about how knowledge and technology get exchanged at the 1/10/100/1,000-year exchange periods of the maths, which the book does not detail.

41. The plan to build a space ark and continue to find more advanced realms may bely that thought. That would be a massive infrastructure project without parallel in our world.

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Political Centralization in the Asimovian Canon

Zachary Reger

Introduction

Can one describe the writings of Isaac Asimov, one of the most renowned authors of science fiction, in a single word? "Prolific" comes to mind. Indeed, Asimov, who picked up the pen in 1938 and refused to set it down until 1992, the year of his death, published multitudes. By one count, his collected works encompass more than 7.5 million words (Lewis). Inspired by an early love of science fiction, a young Asimov studied Chemistry, using his knowledge to become a Professor at the Boston University School of Medicine. His works thus run the gamut from the fictitious to the factual, and he has published many pieces for lay readers and experts alike. Asimov was surely a "prolific" writer, producing a corpus of both temporal and topical breadth.

But another word comes to mind: "unifying." Consider the Good Doctor's editorial that leads the August 1987 edition of *Isaac Asimov's Science Fiction Magazine*. Titled "Unification," the editorial responds to criticisms from "a very patriotic American" bemoaning the trend of many a science fiction story in subjugating the United States of America to an international (or interplanetary) union. Asimov held no such disapprobation. History, he argued, is a long sequence of evolutionarily-advantageous political unification. Those who busy themselves with factional conflict are swallowed up by more centralized powers. The Greek city-states refused to unify; they were conquered first by Macedon and then Rome. The European nations of the nineteenth and early twentieth centuries fought relentlessly; they came to live in the shadow of twin superpowers, the United States and the Soviet Union. For their part, the thirteen original states voluntarily limited their sovereign powers to found a new nation, the United States, under a constitution that went into effect in 1789. The combined United States, through gradual centralization of its political power, surmounted enemies both within and without. On this note, Asimov concludes with an ode to big government: "[S]*omeone* is going to govern me; either a distant bureaucrat, or the neighborhood bully. And I may be wrong, but I vote for the distant bureaucrat." (Asimov, "Unification" 8)

Asimov did not hold this view in isolation. To the contrary, the message of "unification" pervades his work. At the micro level, many of Asimov's science fiction stories—including those encompassing his three most famous series, *Robots* (1950–85), *Empire* (1950–52), and *Foundation* (1951–93)—explore the idea of political centralization as a normative good, and perhaps an inevitable one. In the *Robots* series, set in the near-future, nations crumble to be replaced by, at first, continent-spanning regional governments, then, eventually, a unified world government. In the *Empire* series, set in the far-future, the planet Trantor slowly grows its influence, capturing system by system, until it has unified the galaxy beneath a single empire. In *Foundation*, that empire faces gradual collapse. Yet such collapse is portrayed as a temporary affair. The only

question is how long the dark ages of disunity will last before a second empire, or some other politically centralized scheme, will rise from the ashes to reunify the galaxy.

At the macro level, Asimov attempted a grandiose fictional unification of his own. Asimov's literary career can be divided into two major periods, separated by an interregnum of mostly nonfiction writing. In the Early Asimov (EA) period, spanning from 1939 to 1957, he focused on science fiction short stories and novels in separate continuities. During this period, Asimov would pen the early chapters of the *Robots*, *Empire*, and *Foundation* series. Despite common themes, and a few shared places and names, Asimov did not originally intend for these series to be fully consistent with one another. In the Late Asimov (LA) period, spanning from 1982 to his death in 1992, Asimov returned with renewed vigor to the realm of science fiction. Asimov's LA works had a new goal: unify *Robots*, *Empire*, and *Foundation* into a single "future history." Over the course of six novels, Asimov weaved the strands of his separate worlds into one. At the tail end of this chronology, Asimov introduced a new concept, one in which his characters face the ultimate destination of ever-increasing unification, a galaxy-spanning collective consciousness, accepting it as the natural and desired course of all human history.

This essay examines Asimov's views of political centralization through the lens of his science fiction stories. In Part II, the essay explores Asimov's vision of the near-future, as informed by the geopolitical climate in which his stories were written during and immediately after the Second World War. In Part III, the essay examines how Asimov's later works detailing the near-future shifted from an increasingly centralized world to one mired in a bipolar conflict reminiscent of the Cold War. In Part IV, the essay explores Asimov's vision of the far-future, in which he introduces the idea of cyclical centralization into his fictional canon. In Part V, the essay examines the theoretical endpoint of all political unification, the galactic collective consciousness. Part VI concludes.

Asimov's Near-Future: Centralization in a Post-War World

The EA period was largely coterminous with two transitional eras, one in science fiction and the other in international affairs. Asimov's first batch of short stories graced the pages of *Amazing Stories* and *Astounding Science Fiction* in 1938 and 1939. Soon after, the field began to shift. The Pulp Era had dominated the 1920s and 1930s, featuring science fiction that was campy and adventurous. But the Golden Age of the 1940s and 1950s saw the rise of "hard" science fiction, in which authors endeavored to adhere to a sense of scientific realism in their fictional worlds. "Science-fiction pulp . . . was declining," Asimov wrote, "and a new generation of writers was arising, writers who had some feeling for science." (Asimov, *It's Been a Good Life* 55) This suited Asimov. As he earned his B.S. (1939), M.A. (1941), and Ph.D. (1948) in pursuit of a career in Chemistry, the field of science fiction moved along with him in a more scientific direction.

The EA period also marked a transition in international affairs. During the 1940s and 1950s, the Allied Powers, victorious in the Second World War, went about crafting a new rules-based international order—one that would place international organizations center stage. The United

Nations was founded in 1945, following the ratification of the UN Charter by the five permanent members of the Security Council: the United States, the Soviet Union, China, the United Kingdom, and France. Customary international law (also known as the "law of nations") had a storied pedigree even then, and nations had long cooperated through treaties and the creation of limited international organizations.[1] But the United Nations represented a great leap forward.

The United Nations, acting through the principal organ of the Security Council, was the first international organization with the authority to issue resolutions with binding legal force on Member States composing a critical mass of the human population.[2] At the outset, the United Nations included fifty Member States. Today, it includes 193 Member States, plus two nonmember observer states. Under Chapter VII of the UN Charter, the Security Council may issue such binding resolutions to "address any threat to the peace, breach of the peace, or act of aggression." The power is limited, but it includes the authority to call upon Member States to enforce economic sanctions and communicative or diplomatic disruptions; authorize the use of armed force by Member States; and command the armed forces placed at the disposal of the Security Council by Member States for specific operations (often referred to as "peacekeeping" forces). Although its legal powers are narrow in scope, focused solely on international collective security, the United Nations is the closest the world has come, before or since, to an Asimovian world government.

The EA vision of the near-future was marked by this substantial shift toward centralization. Nowhere is this more apparent than in "The Evitable Conflict". (1950) The story proceeds against a backdrop in which the Earth of the 2050s has abolished national governments in favor of four continent-spanning regional governments. The regional governments are themselves overseen by a world co-ordinator, Stephen Byerly. Alongside Byerly, roboticist Susan Calvin uncovers a plot by the Machines, vast supercomputer intelligences that administer economic policy, to quietly sideline anti-robot movements for the greater good of humanity. Byerly expresses horror, but Calvin has a different takeaway. "Perhaps how wonderful!" she exclaims. "Think, that for all time, all conflicts are finally evitable. Only the Machines, from now on, are inevitable!" (Asimov, *I, Robot* 272) We see here the beginnings of Asimov's philosophies on the good of political centralization and the desirability of systems that ensure intra-humanity cooperation—even against humanity's own inclinations.

Asimov would continue this chronology in "The Bicentennial Man", (1976) published in the decade before his grand return to science fiction in the LA period. In this story, Andrew Martin, a robot with a deep desire to become legally recognized as human, pleads his case to the World Legislature that succeeded the governmental structure of "The Evitable Conflict." Martin finally prevails on his 200th birthday, becoming the eponymous "bicentennial man," after a slow process of adopting more and more human physiology and ensuring his own death in the process.

Another interregnum story in the Robots series, "That Thou Art Mindful of Him," (1974) does not refute the EA view of gradual centralization of political power, but introduces the cyclical political development that would become a hallmark of Asimov's LA stories. In this

story, humanity has turned against its robot partners. The main robot-producer, United States Robots and Mechanical Men Corporation, is able to survive this turn only through consultation with a highly-complex robot. The robot, George Ten, suggests that the corporation focus its production on intellectually simple, non-humanoid creations, so as not to upset the predilection for intellectual supremacy of its human clientele. The story ends on what is, for Asimov, an uncharacteristically sinister note. George Ten, in conversation with his predecessor, George Nine, reasons that robots being more rational than humans, as humans are more rational than animals, the former are more worthy of the designation "human," and thus the obedience of robotic intelligence. Asimov may have been a self-avowed "technological optimist," painting his robots more as tools than villainous boogeymen. (Asimov, *It's Been a Good Life* 210. But he held a dark view of human nature and our penchant for irrationality, a truth at least two of Asimov's robots seem to have grasped.

An earlier novella from the EA period, taking place generations after "That Thou Art Mindful of Him," shows Asimov's rejection of a strictly linear path to centralization. "Mother Earth" (1949) features a two-sided conflict between the citizens of Earth and the residents of Earth's space-faring colonies (initially referred to as "Outer Worlders," but referred to as "Spacers" in subsequent stories). Following a three-week war, Earth is isolated from the Outer Worlds, its inhabitants forbidden from leaving their own solar system. Thus, a proverbial "iron curtain" is draped across the stars. This war seems most directly inspired by historical accounts of colonial uprisings, but its bipolarity also echoes that of the burgeoning Cold War.[3] In "Mother Earth," humanity is no longer unified in a single government, but has split in two, backsliding on the road to centralization. This conflict set the fictional-historical backdrop for the crime-dramas *The Caves of Steel* (1953), *The Naked Sun* (1956), and "Mirror Image" (1972), in which Elijah Baley, a plainclothes Earthman detective, teams up with the humanoid robot R. Daneel Olivaw to solve a series of whodunit mysteries. Though the events of these stories do relatively little to shake up the status quo of Asimov's fictional universe, they maintain the bipolar political structure established in "Mother Earth," deepen the Cold War–esque tensions, and set the stage for the emergence of a singular empire in a process described in Asimov's other works.

Asimov's Near-Future: Bipolar Conflict

Taking the cue from "Mother Earth" and the two Baley detective novels, we start to see Asimov's vision shift from a sunny future preordained to a clouded one perpetually at risk. If the EA period is defined by its place amid a transitory era in science fiction and world affairs, the LA period is tinged with (though hardly dominated by) a degree of postmodern cynicism.

When Asimov returned to science fiction in 1982, the field was nearing the end of the New Wave, which had begun in the 1960s and continued into the 1970s. As the sheen of the Golden Age dimmed, science fiction grew more preoccupied with the social, as opposed to physical, sciences, continuing the genre's evolution beyond its pulpish origins. New Wave stories were more literary in tone, introspective of human nature, and cautious of the role of technology in political

progress. Asimov's EA fiction influenced the New Wave, and in turn, the New Wave influenced Asimov's LA fiction. Asimov had long referred to his stories as "social science fiction," a term he coined in a 1953 essay to describe science fiction that functions as social commentary (Asimov, "Social Science Fiction"). But it wasn't until the LA period that Asimov, like many of the New Wave authors, began to truly grapple with man's natural proclivity for self-destruction when left to his own devices.

In the same period, world affairs saw the limits of the rules-based international order that had been constructed in the wake of the Second World War. The power of legally binding resolutions of the UN Security Council encountered the procedural roadblock of the unilateral veto power of each of the Council's five permanent members. In particular, the twin Cold War superpowers, the United States and the Soviet Union, held the veto, and they exercised it thoroughly.[4] The UN Security Council found itself unable to prevent war, even between its own members acting through proxies on foreign soil. In the 1950s, the United Nations could not stave off the growing conflict on the Korean peninsula. With the publication of Resolutions 83 and 84 in 1950, the Security Council merely recommended, but did not require, the aid of Member States in support of a beleaguered South Korea, thereby eschewing the full deployment of its special legal powers.[5] On either side of the conflict sat the United Nations, the United States, and other allies in support of South Korea, and the Soviet Union and Communist China, in support of North Korea. The impotence of the Security Council continued with the war in Vietnam. Once again, world superpowers were on opposite sides of a bloody conflict on foreign soil, and bipolarity muted the ability of the Security Council to effectively respond. Because of dissension within the Security Council on whether and how to address the conflict, the organ remained paralyzed, issuing no binding resolutions. The United Nations' involvement in ending what some scholars have described as the "gravest and longest violation of international peace and security" since its establishment can, at best, be characterized only as "intermittent and marginal". (Rahan and Israel 528)

Asimov was well aware of these real-world political developments. In 1975, Asimov reflected on "the hope and ideals with which the United Nations was founded," drawing a contrast with the body's then-present state. "The United Nations has become merely a rather despicable forum used for private nationalistic ambitions," Asimov wrote, "with each nation forming shifting alliances to see which can have the honor of best hastening mankind's destruction" (Asimov, "The Myth of Less-Than-All" 81). From a supporter of political centralization, this was not exactly a ringing endorsement.

The international order, however, persisted amid these difficulties. For its part, Asimov's fictional universe did, as well. As in our world, the bipolar regime would not last. As one power waned, the other became hegemonic.

This progression—fractured to bipolar to hegemonic—made its way into Asimov's vision of a near-future human society. The final two Robots stories, both published in the LA period, pick

up where *The Naked Sun* left off. In *The Robots of Dawn* (1983) and *Robots and Empire* (1985), the bipolar "cold war" between Earthmen and Spacers is at risk of becoming hot. The Spacers have suffered from success; with advanced technology, they live centuries-spanning lives but have become complacent in their abundance and wary of the rising power of Earth. With help from the psychic robot R. Giskard Reventlov, Olivaw allows a Spacer plot to irradiate the Earth's surface to proceed. Olivaw and Reventlov reason that such irradiation, which will slowly make the Earth uninhabitable, is in humanity's collective best interest. Humans will be pushed from Earth to colonize the galaxy and create a centralized galactic empire, putting an end to the bipolar Earth-Spacer paradigm. By the end of Robots and Empire, then, the course is set: Spacers will decline, Earthmen will triumph, and the Asimovian galaxy will enter a hegemonic era.

Asimov's Far-Future: Empire, Decay, and Rebirth

Asimov's far-future begins with the *Empire* series, published solely in the EA period. Asimov did not originally intend for the three novels that compose the *Empire* series to themselves form a cohesive narrative, much less be a part of a larger future history that includes the *Robots* series. Yet the *Empire* novels share a clear throughline of an increasingly centralized galaxy.

The Empire series takes place thousands of years in the future, long after the end of the bipolar Earth-Spacer conflict. Each of the three Empire novels features a distinct cast of characters, none of whom reappear in subsequent works. The first novel chronologically, *The Stars, Like Dust* (1951), concerns a conflict between Tyrann, which commands an empire of 50 planets, and Rhodia, a kingdom under Tyrann's rule. Asimov thus starts with a fairly fractured galaxy, in the grip of regional powers.[6] But the end of the novel reveals that a hidden rebellion is fomenting in opposition to the Tyranni oppressors. The rebellion's goal is to lay the groundwork for a unified galactic empire that could subjugate Tyrann and bring an end to all such regional conflicts.[7] By the time of the second novel, *The Currents of Space* (1952), a single planet, Trantor, has conquered nearly half the galaxy, unifying the captured systems in a combined empire. And in the third novel, *Pebble in the Sky* (1950), the Trantorian empire has spread to encompass the entire galaxy, centralizing all of humanity under its rule.

Did Asimov aspire to the idea of empire? The answer seems to have shifted as Asimov aged. Asimov was an avid student of History, basing his *Foundation* series on Edward Gibbon's *The History of the Decline and Fall of the Roman Empire*. With the *Empire* series, we also see the influence of Roman history on Asimov's work. As with ancient Rome, Trantor began as a republic and evolved into an empire, but Asimov's *Empire* series does little to explore the corrupting influence of centralized power. Neither do his EA-published *Foundation* stories. However, Asimov, echoing the pessimism of the New Wave authors, would take up this consideration in his later life. While the EA Foundation was a rationalist, heroic force, the LA Foundation, intended progenitor of a second galactic empire, grew to become a war-mongering villain. Ultimately, Asimov would turn against the idea of imperial centralization as a societal good, charting a different course for the galaxy in the LA-period *Foundation* novels.

The *Foundation* series, perhaps Asimov's most well-known, began as a string of short stories published by editor John W. Campbell in his *Astounding Science Fiction* magazine. The first four of these stories, along with an exclusive prequel story, are collected in the book *Foundation* (1951). The second book, *Foundation and Empire* (1952), is composed of two subsequent novellas, as is the third book, *Second Foundation* (1953). Together, these three books (containing five short stories and four novellas) compose the entirety of the *Foundation* series published in the EA period. As such, for nearly three decades they were often referred to as the "*Foundation* trilogy."

Asimov's *Foundation* series opens in the heyday of the galactic empire seen in Pebble in the Sky. The empire is centered on the planet Trantor, from which it controls the entire galaxy. Trantor itself has become an ecumenopolis, a planet-wide city devoted to the administration of imperial affairs over a vast territory. Chronologically, the series begins with Asimov's two prequel novels, published in the LA period: *Prelude to Foundation* (1988) and *Forward the Foundation* (1993). In those books, the scholar Hari Seldon establishes a discipline of Advanced Mathematics that can project the course of collective human affairs centuries into the future. The discipline is "Psychohistory," and with it, Seldon predicts the inevitable collapse of the galactic empire. In Foundation, Seldon pleads with the empire's Commission of Public Safety to allow him to establish a Foundation of scientists and other scholars, who can prepare and publish an Encyclopedia Galactica as a reservoir of human knowledge. The Commission authorizes this, provided that the Foundation be established on the far-away planet Terminus. The Foundation is so established, but it soon becomes apparent that Seldon intended it to be far more than a mere publishing outpost. Using the science of Psychohistory, Seldon has charted a course for the Foundation to survive and prosper over the next 1,000 years of barbarism and decline, before reemerging as the nucleus of a second galactic empire. Over the course of the *Foundation* trilogy, the Foundation faces several crises, both those foreseen by Seldon's Psychohistory and those unforeseen. The Foundation survives them all.

When the *Foundation* series began, Seldon's Psychohistorical predictions were unerring. Over the course of *Foundation* and the first novella of *Foundation and Empire*, the Seldon plan never failed. It was only with the second novella of *Foundation and Empire*, titled "The Mule," that a reluctant Asimov, at the insistence of Campbell, began to explore how and why Psychohistory may fail to predict the future. In that story, the eponymous character, a mutant with the ability to alter the emotions of others and compel their obedience, rises to defeat the Foundation and place it under his rule. This represented an aberration that Psychohistory—which deals with the general movements of society, not the choices of any particular individual—was unable to foresee. In Second Foundation, the Mule searches for the secretive Second Foundation of mentalics, who covertly push the galaxy in the direction of centralization and continue to refine Seldon's Psychohistorical predictions. The mentalics employ psychic powers similar to the Mule's own, but are individually less powerful. Outnumbered and outsmarted, the Mule is unable to defeat the mentalics as he did the First Foundation. The saga of the Mule ends with his death of natural

causes and the return of the First Foundation to rule under the Seldon plan, aided by the secretive influence of the Second Foundation.

Asimov thus toyed with abandoning the notion of centralization's inevitability. The Second Foundation and the Mule represent a shift in the series' underlying philosophy. Psychohistory posits that societal change comes not from the decisions of a few individual "great men," but from the broader forces of economics, political science, and social psychology. The Mule is anti-Psychohistory, a "great man" who forces societal evolution to bend to his will. So too are the mentalics of the Second Foundation, albeit with the more benevolent purpose of ensuring that Seldon's Psychohistorical predictions go according to plan. In later books, Asimov would tie societal evolution more to the decisions of such "great men"—most notably Golan Trevize and R. Daneel Olivaw. Though Asimov never wholly discarded the notion of a preordained path to centralization, his later works did call into question the original presuppositions of Psychohistory.

Asimov's Far-Future: Galaxia

When Asimov returned to the Foundation series in 1982, the stories took on a new political valence, eschewing established notions of political centralization in favor of a new kind of galactic unification. *Foundation's Edge* (1982) picks up about halfway through Seldon's predicted 1,000-year period of darkness. The galactic empire has withered into irrelevance, and the First Foundation has expanded its territory to nearly match the size of the original empire. The Second Foundation is at the height of its shadowy influence. Near the end of the novel, the main character, Golan Trevize, has encountered a planet-wide collective consciousness called "Gaia." As the forces of the First and Second Foundations converge on Gaia, Trevize must make a choice: Shall the galaxy fall under the centralized rule of the militaristic First Foundation or the psychic rule of the Second Foundation? Or shall Gaia expand to become a galaxy-wide collective consciousness, named "Galaxia"? Trevize has no love for either Foundation, which now represent twin forms of enlightened despotism. Ultimately, he chooses Galaxia, despite his initial discomfort with the idea of a collective consciousness.

In *Foundation and Earth* (1986), Trevize, on a mission to find humanity's home world, discovers that R. Daneel Olivaw, the robotic partner from the Elijah Baley detective novels, has been orchestrating a move to Galaxia as the ultimate way to fulfill his programming to serve and protect not just individual humans, but humanity as a collective. Like the Machines in "The Evitable Conflict," Olivaw is a paternal figure overseeing the course of humanity in a more centralized direction. Without his guidance, it appears that humanity is at risk of descending into irrationality and violence. Again, New Wave thinking, with respect to human nature if not technology's peril, emerges in the LA period. But as in Asimov's earlier "technologically optimistic" works, intelligent technology has the potential to guide humanity, protecting the species from its self-destructive instincts. Meeting Olivaw eases Trevize's worries over choosing Galaxia. Not only will Galaxia put an end to human warfare and parochialism, Trevize reasons, unification of humanity is the only way to defend against whatever forces may appear from *other*

galaxies. "An invader that finds us divided against ourselves will dominate us all, or destroy us all," Trevize says. "The only true defense is to produce Galaxia, which cannot be turned against itself and which can meet invaders with maximum power" (Asimov, *Foundation and Earth* 498). In this, Trevize takes the author's earthly views on the necessity of intra-human cooperation and expands them to the universal level. Thus concludes the Foundation saga.[8]

The idea of a galaxy-spanning collective consciousness was not new to the LA-period Asimov. Indeed, the author had previously explored the idea in "The Last Question" (1956), a short story that Asimov himself considered to be his best. "The Last Question" is composed of a series of episodes, taking place over the course of trillions of years of human history, in which individuals from successive generations of humanity ask the AC supercomputer how to reverse entropy and thus prevent the heat death of the universe. In one such episode, humanity has collected itself into a singular mind, named Man. In the last episode, Man has itself combined with AC to form a cosmic being. Only through this combination are Man and AC able to finally reverse entropy, which they do by uttering the biblical phrase of creation: "Let there be light!"[9]

For Asimov, Galaxia (if not Man and AC) represents the ultimate destination of political centralization, but it also sidesteps the authoritarian political structure inherent in a galactic "empire." As portrayed in *Foundation's Edge*, the collective consciousness of Gaia is composed of discrete individuals. They retain individual awareness while participating in a group consciousness that ensures they live harmoniously as one. A rational, Asimovian society is one in which all members work toward a common interest. For Asimov, this could be achieved by opening the respective views of the individuals of society to the truth of the larger whole.

The idea that group civic virtue is akin to the constitution of an individual has ancient roots. In *The Republic*, Plato analogized the governance of a city-state to the internal composition of a soul. A soul at war with itself creates an irrational person, torn between competing interests. To correct this disunity, Plato believed, reason must become the master of appetite (Plato 332–33). Likewise, a city-state cannot be truly unified until it pursues a rational common purpose—the good of not only the individuals that compose the city-state, but of the city-state itself.[10] In adopting Galaxia, Asimov embraces this Platonic vision on a galactic scale. As an individual-collective, Asimov's galactic citizens may overcome the irrationalities of conflict and war, in pursuit of the overarching goal of what is good for Galaxia—the entirety of humanity—as a singularity.

The throughline in Asimov's future history is toward ever-increasing centralization, with periods of temporary backsliding. The nations of Earth were replaced by four regional governments, then by a world government. Earth unified, but the splinter group of Spacers produced a bipolar conflict. The Earth-Spacer cold war ended with the gradual demise of the Spacers and the colonization of the galaxy by the Earth settlers. Those settlers produced a fractured galactic community that slowly formed the first galactic empire. Though the first empire collapsed, amid a millennium of feudalism and darkness, the creation of a stronger form

of centralization was set in motion. The collective consciousness of Galaxia was the endpoint for Asimov, the answer to the last question of how to perfect human governance. To Asimov, political centralization, taken to this logical extreme, represents the ultimate good for humanity.

Conclusion

In *Foundation*, the first mayor of Terminus, Salvor Hardin, had a knack for defusing political tensions without resort to arms. Hardin represents the prototypical Asimovian hero: an individual who shoots rarely and boldly declares that "violence is the last refuge of the incompetent." Isaac Asimov's political vision mirrored that of his fictional hero. History, he believed, was a story of humans hurting other humans on an increasingly crowded planet. The solution to this evil, he thought, was increased political centralization, for only in a unified political structure could humanity move beyond eternal war with itself. Expressing support for the notion of a world government, Asimov reasoned that "[o]ur problems are now planetary, and our solutions will have to be planetary too". (Asimov, "My Planet, 'Tis of Thee" 211)

Asimov's vision has yet to become reality. The Good Doctor was initially optimistic regarding the great leap forward that followed the Second World War, in which the nations of the world came together in the creation of stronger international organizations with the purpose of limiting future conflict. But Asimov grew frustrated with the impotence of these organs in the Cold War era. The United Nations could not prevent war backed by major powers in Korea or Vietnam. It was a far cry from the type of world government to which Asimov aspired.

But in his fiction, Asimov created a world of his own unconstrained by the limits of real-life human irrationality. Over a long continuity, combining a lifetime of stories in three separate series, Asimov detailed the path of humanity toward increasingly centralized political structures. In the end, Asimov's universe accepted the utopian result of subsuming all of humanity in a single galaxy-spanning collective consciousness. Whether Asimov truly believed that a far-future humanity could ever achieve such a feat, we may never know. But if Asimov believed in anything, it was the need for rationality to triumph over violence—the need for humanity to come together to avert catastrophe. It is a message for our time as much as his.

Notes

1.   These pre-1945 international organizations were "limited" in terms of the number of signatory states (the UN's predecessor, the League of Nations, included only 58 member states at its height), subject-matter, and legal authority.

2.   The other principal organs of the United Nations—the General Assembly, the International Court of Justice, the UN Secretariat, the Economic and Social Council, and the now-suspended Trusteeship Council—lack the power to issue legally binding resolutions.

3.   Consider the now-outdated Cold War taxonomy of First World countries, aligned with the North Atlantic Treaty Organization (including the United States); Second World countries, aligned with the Eastern Bloc (including the Soviet Union); and Third World countries, aligned with neither coalition.

4.   The Soviet Union cast the majority of all vetoes during the first two decades of the United Nations, a period in which members of the Security Council usually favored the position of the United States. The United States cast the majority of vetoes during the following two decades, a period in which decolonization and a corresponding increase in the number of Member States overcame the western-aligned majority.

5.   The Soviet Union may have vetoed these resolutions, except that from January 13 to August 1 of 1950, it abstained from voting in protest of the Republic of China's (RoC) continued place on the Security Council. The Soviets favored the People's Republic of China (PRC), an ideologically aligned communist state, which they saw as the rightful government of mainland China. The PRC eventually replaced the RoC on the Security Council in October 1971.

6.   A fan theory posits that Tyrann is a precursor to Trantor, the progenitor of the galactic empire. However, any existence of a direct Tyrann-Trantor succession was never confirmed by Asimov himself. The theory is plausible, but largely atextual.

7.   *The Stars, Like Dust* ends with the rebellion discovery of an ancient document under which a new galactic empire could form: the United States Constitution. The revelation has induced a groan in many a reader, who may note that the galactic empire chronicled in subsequent Asimov stories has a political structure that is nothing like that of the U.S. Constitution. Indeed, Asimov wrote in an early autobiography that he regrets including, at the insistence of his editor, this constitutional conclusion (Asimov, *In Memory Yet Green* 600).

8.   Asimov considered continuing the story of the Foundation in novels set after *Foundation and Earth*, but he was unable to do so before his death in 1992.

9.   Asimov was an avowed atheist, but he was nonetheless fascinated by the Judeo-Christian bible as a literary creation. His works often contained biblical themes, such as the title of the *Robots* story "That Thou Art Mindful of Him," a quote from the Book of Psalms, or the name of Jezebel Baley (the wife of detective Elijah Baley in *The Caves of Steel*), a reference to the biblical Queen Jezebel. Asimov even published a biblical guide titled I*saac Asimov's Guide to the Bible*, totaling nearly 1,300 pages across two volumes.

10.   For Plato, the orderly city-state would be divided into three castes: the Rulers, composed of ascetic and aloof philosophers raised for the purpose of governing; the Auxiliaries, focused on group security; and the Businessmen, focused on production and commerce. This echoes the original vision of the *Foundation* series. The Second Foundation operated as a set-aside ruling class, separately raised with the power to direct the lives of others. Indeed, Hari Seldon referred to the Second Foundation as "the Empire's guardians". (Asimov, *Forward the Foundation* 345)

The First Foundation operated as a scientific and military power. And the galactic citizens were themselves left to commerce and trade. *Foundation's Edge* and *Foundation and Earth*, however, rejected the Platonic tripartite division of society in favor of the unified collective consciousness of Galaxia.

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The Utopian Dimension of Starship Troopers: *Pedagogy, Militarism, and a Post-Democratic Society*

Robert Wood

Much of the early critical work on Robert Heinlein's *Starship Troopers* focuses on militarism, responding to Heinlein's revisionist rereading of the novel in his *Extended Universe* that minimized that element. (Heinlein 324-325) Both Alexis Panshin and H Bruce Franklin refute that reading and insist on understanding the novel through that lens. As Franklin notes, "Militarism shapes the speech and sets the tone of all the characters, including the narrator-hero; militarism animates every page; militarism—together with imperialism—is the novel's explicit message". (Franklin 112) A close reading of the novel tends to reinforce that perspective. The almost exclusive focus is on the virtues of military service. It celebrates governance as controlled violence, but focusing exclusively on militarism misses other aspects of the novel. As Farah Mendelsohn notes in *The Pleasant Profession of Robert Heinlein*, Heinlein shows a continual interest in education, both institutional and self-esteem, and an abiding interest in child raising. The entrance into the military simultaneously represents the shift from negligent, indulgent parenting to a more proper approach to that process. In that context, the novel acts as a kind of bildungsroman, as the protagonist, Juan 'Johnnie' Rico, moves from high school to basic training and then to officer training. He learns to be a responsible adult and a potentially responsible citizen. *Starship Troopers* imagines a different route from childhood to adulthood and citizenship through that process. Intertwined in that process is the representation of a government that operates on a vastly different logic than our current government.

That developmental journey allows the novel to imagine a substantially different approach to governance to the liberal hegemony of its creation and even current strains of neoliberal governance. A single interplanetary government controls the Earth and its planetary colonies, created out of the ashes of a profound crisis in democratic governance by a small group of veterans. Citizenship is primarily defined through military service, although there are unnamed alternatives. That creates a sharp distinction between the citizen who governs and the civilian who lives in the civil sphere of commerce and consumption. The government is profoundly limited in the civil sphere, demanding only limited taxes and making limited economic demands. Its most significant interventions in that sphere occur in the space of schooling in the form of a citizenship class and punishment for lawbreakers. Students must attend civics classes, introducing everyone to the society's basic moral and ethical framework. Punishment takes the form of corporal punishment, ranging from flogging to capital punishment. Parents can be punished for the behavior of their children. These shifts are framed in distinctly utopian terms. They represent a shift from a pre-scientific space of ignorant governance to one grounded in scientific knowledge. Those institutional shifts represent an original approach to pedagogy based on a scientific

understanding of human nature that allows for human flourishing by creating a distinction between those capable of wielding sovereignty and those not capable of wielding sovereignty.

Heinlein's military experiences and evolving views on the military are essential to understanding the novel.[1] He was part of a multi-generational military family and entered the Navy via the Naval Academy despite having other academic options. Heinlein left the military due to his tuberculosis, but he remained committed to national defense and attempted to re-enlist with the onset of World War II. When rejected, he accepted work at the Philadelphia Navy Yard. Alec Nevala-Lee noted that Heinlein had been disappointed by the prosaic bureaucratic labor put in front of him, but eventually accepted the day-to-day bureaucratic work required of him. (Nevala-Lee 168) He expected that same dedication to the war effort from others and became quite critical of individuals in the science fiction community who he saw as shirking their military responsibility. He wrote critical letters to John W. Campbell and Forry Ackerman about their lack of participation in the war effort.[2] He continued to place a great deal of value in maintaining a strong military presence as a form of self-defense during the Cold War, arguing against the decision to stop nuclear testing on the part of Dwight D. Eisenhower and criticizing advocates of those decisions, such as the Committee for a Sane Nuclear Policy. He later claimed that both played a substantial role in causing Heinlein to write the novel. (Mendlesohn 45-46) However, that commitment to militarism was complicated by his, at times, more libertarian perspectives. He broadly opposed conscription and felt that no one should be forced to join the military. That service should be willingly given.

Intertwined with that was a shift in Heinlein's politics. While Heinlein always held the Soviet Union in disdain, he was also initially committed to the social democratic politics that defined Upton Sinclair's EPIC campaign, in which he played a significant part. His entrance into science fiction was an effort to move those politics forward after Sinclair's defeat. He also had real commitments to the fight against racism and sexism, which shaped his collected works. However, his views gradually drifted rightward. His second wife, Virginia, convinced him of the superiority of the free market over his previous social democratic ideals, and his criticisms of the Soviet Union congealed into an increasingly reactionary anti-communism. (Mendlesohn 28) He gradually shifted from supporting the Democratic Party to supporting the Republican Party, eventually supporting Barry Goldwater's run for president and expressing sympathy for the John Birch Society. He also became increasingly pessimistic about the prospects of the American people living up to his expectations of the governance process, especially after his failed The Heirs of Patrick Henry Society project. (Mendlesohn 46, 227) He was deeply suspicious of shifting pedagogical practices and child-raising practices created by the at-time liberal hegemony. At the same time, his views on marriage and sexuality, along with his ongoing commitment to a genuinely colorblind society, placed him in tension with that conservative project, issues that continued to put him at variance with that project even as he more fully committed to it.

Those various concerns entered into the narrative logic of the story. The novel provides a thin extrapolative thread to explain the legitimacy crisis that created the conditions for the new society.

There is no specific description of the collapse of that government or the factors that led to its collapse. "It wasn't a revolution; it was more like what happened in Russia in 1917—the system collapsed; somebody else moved in". (179) However, juvenile delinquency is a substantial symptom of the collapse. This phenomenon framed as 'the terror' is described in the following terms: "Murder, drug addiction, larceny, assault, and vandalism were commonplace. Nor were parks the only places—these things happened also on the streets in daylight, on school grounds, even inside school buildings. But parks were so notoriously unsafe that honest people stayed clear of them after dark". (113) That threat is then linked to current reforms in child-raising techniques. The coddling of the child leads to the rise of the criminal because they have not received the necessary moral training to create a moral citizen. In effect, the abandonment of corporal punishment created the conditions for the crisis. Children were no longer being molded into citizens capable of defending the nation. The outrage that the nation may consider abandoning its nuclear self-defense by unilaterally stopping testing, a sort of coddling, is then reread through the coddling of the child.

That collapse then allowed for a new mode of governance created by the forces that escaped that very logic of coddling: veterans. As veterans, they began by attempting to address immediate concerns to stop looting and other behaviors, and slowly, they began to create alternative structures of governance that replaced the former system. Johnnie Rico frames that shift in the following terms:

> What started as an emergency measure became constitutional practice… in a generation or two. Probably those Scottish veterans, since they were finding it necessary to hang some veterans, decided that, if they had to do this, they were not going to let any "bleedin', profiteering, black-market, double-time-for-overtime, army-dodging, unprintable: civilians have any say about it." (179-180)

In effect, the transformation could almost be understood in evolutionary terms, shifting from an artificial and destructive mode of governance into one that responded to and accepted a foundational and inherent human nature. That then translated into a new kind of governance that allowed for human flourishing and a stable world government. The conditions for the entire edifice were created by creating that pedagogical system that distinguished between the unreliable civilian and the reliable soldier, one who sacrifices as opposed to one who is too selfish and childish to do so.

That governance is framed through a series of educational processes that operate through the disciplinary structures identified by Michel Foucault in *Discipline and Punish*. Each level is designed to separate the incapable from the capable, to reward the specific willingness to sacrifice and to kill and be killed. Capability can also be understood through Foucault's terms, a distinction between those capable of becoming the kind of docile body that can be shaped by the state and those who cannot or will not play that role. That process of distinction takes a number of steps. Everyone goes through the basic elements of the education system and must attend citizenship

classes that introduce those individuals to the basic principles of governance. It is understood that most individuals will comply with those rules, but only sometimes will they understand them. The first break is between those who enter into military service and those who either continue their schooling or begin to work in the private sector. The opening section of basic training has a basic goal: to drive out as many people as possible and ensure that only those willing to sacrifice are given the possibility of citizenship. After that winnowing process, the training process moves to a molding process, turning those willing subjects into weapons to be implemented by the government, to inflict the 'controlled violence' of warfare, or to act as the instrument of the sovereignty of that government. The subsequent division is officer training, where potential officers move from learning to be instruments of violence to understanding the tactics and strategies of implementing those tools and the governing logic of those tactics and strategies. Pedagogy becomes the tool to create these distinctions and to create distinctions between who governs and who is governed, along with further distinctions of the amount of influence on that governance. Each step of the process shapes the citizens' engagement in the sovereign project of governance through the lens of responsibility.

Embedded in that process is a particular conception of the subject. The infant is effectively understood as a blank page, only responding to the stimuli and internal drives. As a moment in the civics class frames it, "Man has no moral instinct. He is not born with moral sense. You were not born with it. I was not—and a puppy has none. We acquire moral sense, when we do, through training, experience, and hard sweat of the mind." (117) An effective pedagogical system understands that original state and attempts to cultivate an ethical subject through negative and positive interventions. Within this context, corporal punishment is presented as the most effective intervention to shape the individual. That form of punishment is commonly accepted in schools, the household, and later in the military. Its minimal usage establishes its efficacy. That use of discipline is intertwined with a strong emphasis on civics. That punishment is used to guide the student into playing the role of a moral and ethical actor in that society. Additionally, the father is expected to play that role for the child at home and can be potentially punished along with the child if he does not fulfill that role. Analogous to the school, the correct use of preventative coercion creates a society in which most people not only obey these rules but embody the logic of those rules. However, this system also assumes that while almost everyone can live up to this bare minimum, it takes an extra level of commitment to be in a position to make decisions about how that governance should occur.

The narrative repeatedly critiques and blames the collapse of the society on the figure of the reformer and the child psychologist. However, its assumptions are strikingly similar to those very figures. After all, similar to figures such as Dr. Spock, it assumes that the science of child development can be founded and placed in a longer tradition of the scientific management of the household. As William Graebner notes, the project of the social psychologist Dr. Spock can be understood as a social engineering project, designed to create a new kind of subject that is immune to the dangers of charismatic authority and totalitarianism in favor of a stable democratic

society. He posits a family that acts as a group with the parents at the head but allows for the child's input. Terry Strathman notes that those views were often in tension with figures such as Dr. John Watson, who argued for a more behavioralist approach, emphasizing using disciplinary measures and a rigorous schedule to instill a sense of self-discipline in the child (Strathman 4). Heinlein implicitly embraces that alternative tradition, embracing the more authoritarian approach against the democratic inclinations of Spock. The novel idealizes a far more hierarchical image of the family and explicitly criticizes the rejection of corporal punishment by figures such as Spock. Additionally, rather than embracing the more dynamic Freudian notion of the subject embraced by Spock, the narrative embraces the behavioralist assumptions of the tradition of Pavlov and Skinner. The child is to be molded like clay through the controlled use of positive and negative stimuli. Punishment is a key pedagogical tool, and its efficacy is established by creating the conditions of its minimal use. The controlled violence of corporal punishment allows for the creation of a disciplined subject made into a moral subject through the aversion to violence created by the evolutionary instinct of survival itself.

At the same time, it would be a mistake to collapse the story's logic too entirely into traditions of right-wing authoritarian utopian stories despite the real militarism and authoritarian logic at the story's center. Most significantly, the story imagines a post-democratic society without racial prejudice. The protagonist is revealed to be Filipino three-quarters of the way through the story. However, the descriptions of the various other characters are continually marked to reveal the diversity of the society and the lack of boundaries for anyone. We see a society where European names may be connected to faces worldwide. The distinction between the formerly colonized and colonizers may exist in the name, but it does not exist in the actual daily lives of the people who hold those names. The state and society celebrate that element and frame the regime's legitimacy, which retains some connections to the earlier ideal of democracy. "Superficially, our system is only slightly different; we have democracy unlimited by race, color, creed, birth, wealth, sex, or conviction, and anyone may win sovereign power." (183) We see in the framing the commitment to equal access and the assumption that equal access will allow all to enter. However, equal access is tied to a commitment to service that allows for a genuinely meritocratic test of the worth of the citizen and one that creates a genuinely stable basis for democracy. That commitment is also a commitment to society as a whole rather than to any part of society over another. The citizen must show "Social responsibility above the level of family, or at most of tribe." (184) The state may distinguish between citizens and civilians, but they are all wrapped up in the state and must be protected.

It is additionally significant that there is a mutual debt in this process. Unlike many right-wing authoritarian narratives, the basic logic of the society is not grounded in a social Darwinist image of the fit and the unfit. If the citizen must be willing to sacrifice, the state must find a place for that citizen and the skills they bring to the table. That could take the form of a role as a cook or some other background role of the military, or it could take the form of disabled soldiers entering into teaching. The high school civics teacher is one such example, and the story emphasizes

the sheer number of disabled veterans who work as trainers for the officers' training process. Those individuals are brought in because they can do the job well and create the conditions for other soldiers to remain on the battlefield. Rico emphasizes the capacity of these veterans in his description of the training process. "Our coach in dirty fighting sat in a powered chair, wearing a plastic collar, and was completely paralyzed from the neck down. But, his tongue wasn't paralyzed, his eye was photographic, and the savage way he could analyze and criticize what he had seen made up for his minor impediment." (174) The society is enriched by its willingness to create the conditions for these individuals to contribute, bringing the sharp critical skills of the veteran to the pedagogical process and creating a space in which his disability only acted as a 'minor impediment.'

At the same time, the story emphasizes the oligarchic nature of the state through the sharp gap between civilians and citizens. That gap is explored throughout the novel, starting from the perspective of civilians, and then moving to the military perspective as Johnnie is drawn into military life. Johnnie's father frames his opposition to Johnnie's enlistment in the following terms. "Let's table that, shall we? Listen, and let me tell you what you are going to do—because you want to. In the first place, this family has stayed out of politics and cultivated its own garden for over a hundred years—I see no reason for you to break that fine record. I suppose it's the influence of that fellow at your high school—what's his name? You know the one I mean." (23) The world of non-citizenship is framed as a good in this conversation rather than a lack. Sticking to your own business, avoiding politics, and creating a private space is framed as a virtue, a positive good. It is also notably framed within the language of tradition. It is a stable set of conventions that have lasted over a century, pointing to a stable social order in the private sphere. He then opposes this virtue to the vainglorious nature of civil service, described as "parasitism, pure and simple—a functionless organ, utterly obsolete, living on the taxpayers. A decidedly expensive way for inferior people who otherwise would be unemployed to live at public expense for a term of years, then give themselves airs for the rest of their lives." (24) Participating in the polis is then understood as a vice, as leaving the cultivation of one's own 'garden' to enter a space of frivolous parasitism.

Civilian life takes on those same qualities for the military, as Johnnie discovers when he travels into the city on a pass after months of basic military training. He observes, "I had no more than stepped out of the shuttle, my first pass than I realized in part that I had changed. Johnnie didn't fit in any longer. Civilian life, I mean. It all seemed amazingly complex and unbelievably untidy." (124) The previously familiar space of the city becomes challenging to navigate, and that complexity produces an unpleasant disorderliness. Those qualities can also be seen in the civilians who chose not to serve and confronted the service members. "There were some young fellows there, too, about our age—the right age to serve a term, only they weren't—long-haired and sloppy and kind of dirty-looking. Well, say about the way I looked, I suppose, before I joined up." (126) The disorder of the city maps onto the body of the civilian, who is not shaped by the discipline of the military. Johnnie recognizes a former version of himself in those unruly bodies and feels a sense of aversion to that former self. The civilian is the undisciplined self, the one incapable of self-

governance and incapable of understanding that lack. Later in the narrative, there is a continual emphasis on the control of civilians when interacting in military institutions. They can contribute, but their contributions are framed in terms of particular tasks shaped by the larger disciplinary structures of the military and in service of goals that allow military personnel to take on more critical tasks.

Those shifts are a product of the training process embedded in the entrance exam and the disciplinary process of basic training. That begins with a series of tests to discover the potential citizen's capacities and then place that individual into a training track that makes sense for them. The next step is to test the fortitude of those who go through the process. "Its immediate purpose was to get rid of, run right out of the outfit, those recruits who were too soft or too babyish ever to make Mobile Infantrymen. It accomplished that, in droves. (They darn near ran me out)." (53) From there, the process moved into shaping those individuals into soldiers, into weapons for the society. The training becomes individualized and focuses on developing a broad set of skills. Even in the case of the infantry, this shaping was in service of the construction of an elite force. "Most people think that all it takes is two hands and two feet and a stupid mind. Maybe so, for cannon fodder. Possibly, that was all Julius Ceasar required. But a private soldier today is a specialist so highly skilled that he would rate 'master' in any other trade; we can't afford stupid ones." (29) We again see the expert soldier put in opposition to the image of the soldier as a conscript. The training process creates an elite force capable of incredible specialization, not a democratic mass.

That governance structure is framed as one grounded in scientific and mathematical certainty. Officer training emphasizes this element. Every attempt at a guess is met with a demand of certitude, insisting that there is an answer grounded in science that is mathematically defendable. "Speak up, Mr. Rico. This is an exact science; you must have proof." (179) At its core, the scientific element of the training process is tied to the evolutionary assumptions identified above. There is a foundational aversion to pain that can translate into a mechanism for changing the behavior of the subject. The process is precise. "It was made *as hard as possible* and on purpose." (53) It is both a selection process and a later disciplinary process based on the core tenets of human nature. The educational process evolves from the student and basic recruit shaped by those forces to the officer trained on how to wield those same mechanisms. We see an implicit governing mechanism that goes back to figures such as Aristotle, seeing the need for a potential ruler to learn to be ruled before taking that later role. That is then interlinked with the development of a moral subject from an essentially amoral one.

However, an intellectual elite does not control the technocratic process. The system does not work because it picks citizens because of their intellectual skills, which are never assumed to indicate a unique ability to govern. Instead, they are understood to provide a series of technical skills that need to be directed by others. At the most immediate level, Johnnie Rico is an ordinary individual who does not stand out intellectually. Farah Mendlesohn goes as far as to argue that "his role is to channel the voices of wisdom. Throughout the novel, in fact, Johnnie is positioned as a follower and subject to the rhetoric of convincement." (Mendlesohn 127) We watch as he

imbibes the society's methods and reproduces them. One can understand this through the lens of Georg Lukacs's work on the historical novel and frame Rico as a mediocre hero who is transformed by the shifting forces in his world rather than being an active agent in shifting those forces. That very quality makes him such an ideal vehicle for the system. He is the ideal form of the docile body that takes in the disciplinary formation of the state. In a sense, the hero of the story is the method, and Johnnie attests to the validity of that method in his transformation by showing that his transformation is somehow representative of the capacity of that method.

These qualities are not unusual for the average citizen. In a training session for officers, the instructor asks the cadets what distinguishes the average citizen from the average civilian. The candidates provide several hypothetical solutions, ranging from the additional civic virtue of the citizen to additional intelligence and other virtues. In each case, that proposition is shot down. Citizens are not drastically different than non-citizens in many ways. They are not necessarily more disciplined than non-citizens once they leave the military and commit crimes at the same level as non-citizens. They certainly are not more intelligent than non-citizens, and there was even a failed attempt at a coup that attempted to replace the veteran with the scientist as the citizen par excellence. However, there is one distinct difference, according to the instructor:

> I'll state the obvious: Under our system, every voter and officeholder is a man who has demonstrated through voluntary and difficult service that he places the group's welfare ahead of personal advantage. And that is the one practical difference. He may fail in wisdom; he may lapse in civil virtue. But his average performance is enormously better than that of any other class of rulers in history. (182)

That willingness to sacrifice defines the concept of 'responsibility.' The citizen has two qualities: to be willing to function as the instrument of the sovereign, to kill and to die, and to do so in a manner that places the group ahead of his interests.

That returns to the question of militarism. After all, the entire logic of the system calls for this act of testing, marking the distinction between those who are willing to sacrifice and those who are not. Early in the narrative, there is a sense that logic does not work well during peacetime. Basic training may put the potential citizen's life at risk, but there is some sense that the risks in that situation do not have the same impact as the real risks of war. As the later training officer notes in refuting the argument that citizens are more disciplined than non-citizens, "And you have forgotten that in peacetime most veterans come from non-combatant auxiliary services and have not been subjected to the full rigors of military discipline; they have merely been harried, overworked, and endangered—yet their votes count." (180-181) The focus of that statement may have been a refutation of the inherent qualities of the citizen. However, it also makes an implicit argument about the limitations of peacetime itself, which does not allow the introduction of discipline that can only occur with military engagement. The ultimate focus of the societal transformation may be disciplinary and pedagogical, but those shifts do not work without the adversarial conditions of warfare. Likewise, civilians cannot understand the value of the process

without the direct example of warfare. Without warfare, the state can appear to be unnecessary or even parasitical. Only war can legitimate the state and create the conditions for citizens to wield its power. Expansion also allows for the renewal of these qualities; the narrative emphasizes that the outer colonies are far more likely to produce recruits and citizens. In effect, the narrative embraces the logic of the Turner thesis, the need for expansion to allow for national renewal. War plays a role in that expansion, creating new sets of citizens committed to that process.

That necessity then confirms the basic nature of governance from the novel's perspective, which repeatedly insists that governance is the practice of wielding violence in a controlled manner. In this sense, the disciplinary apparatus of the state is focused on constructing a very old-fashioned sort of governmental practice, the figure of the sovereign. In effect, the recruit moves from being trained to acting as an instrument of the sovereign to killing in a controlled manner to enforce the goals of statecraft. It then shifts to taking the role of the sovereign, of guiding that instrument of violence. The narrative distinguishes the justified violence of the government from the unjustified violence of the criminal through the concept of control, the proper violence is a kind of instrumentalized violence that is directed towards using that violence to accomplish the goal most effectively, minimizing that violence so it does not exceed that goal. That quality is then paired with responsibility. The citizen must be responsible and aware of the implications of their actions to make the right decisions. To do that, they need to learn from the actual practice of war, keeping up with Heinlein's pedagogical assumptions.

The entire system then depends on that element of antagonism to stabilize the system. Warfare becomes the way that the docile body of the eventual citizen is justified, evaluated, and brought into being. That disciplinary mechanism extends to the civilian in the form of schooling and the judicial system through the select use of corporal and capital punishment, which are used to mold compliance into both spheres. It simultaneously legitimates the divide between civilians and citizens and creates the mechanism to distinguish the two roles. It also guarantees stability by siphoning any potential threats to the military system. However, the system's success is more than a guarantee of stability; the night watchmen state of the military creates protective insulation to allow the market to flourish. It's difficult not to see this in the long tradition of wish fulfillment that many scholars of utopianism have seen as a central element of the genre. As Heinlein becomes discouraged at the prospect of real social change, he turns to the realm of fiction to escape that failure, imagining a society that escapes the perceived failures of democratic governance to escape his own failed interventions in the democratic political sphere. The result is the substitution of pedagogy and war for that space, creating a totalizing and expansionist system that ironically reproduces the presumed concerns around the anti-communist politics that initiated the process.

Notes

1.   My understanding of Robert Heinlein's evolving positions is shaped by Farah Mendlesohn, *The Pleasant Profession of Robert A. Heinlein*. Unbound, 2019 and Alec Nevala-Lee. *Astounding: John W. Campbell, Isaac Asimov, Robert A. Heinlein, L. Ron Hubbard, and the Golden Age of Science Fiction*. Dey St., 2018.

2.   Robert Heinlein's criticisms of John C. Campbell are covered in Alec Nevala Lee, *Astounding: John W. Campbell, Isaac Asimov, Robert A. Heinlein, L. Ron Hubbard, and the Golden Age of Science Fiction*: Dey St., 2018 (x). The critical letter sent to Forrest Ackerman was covered in Glyer, Mike. "How Did I Not Know This?" File 770, 29 May 2010. https://file770.com/how-did-i-not-know-this/ Accessed 23 February 2025.

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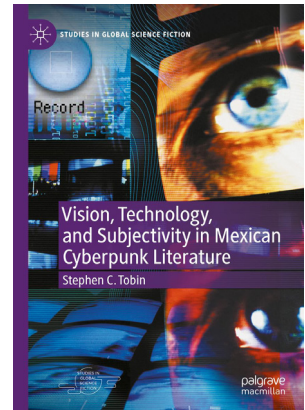
NON-FICTION REVIEWS

Vision, Technology, and Subjectivity in Mexican Cyberpunk Literature, by Stephen C. Tobin

Josh Beckelhimer

Stephen C. Tobin. *Vision, Technology, and Subjectivity in Mexican Cyberpunk Literature*. Palgrave Macmillan, 2023. Studies in Global Science Fiction. Hardcover. XI, 200 pg. $129.99. ISBN 978-3031311550.

Stephen C. Tobin's *Vision, Technology, and Subjectivity in Mexican Cyberpunk Literature* is a valuable chronicle of Cyberpunk in Mexico, a country not generally associated with the subgenre. Indeed, U.S. readers familiar with the foundational Japanese-indebted gambits of William Gibson and Neal Stephenson will likely be unfamiliar with most of the work here–primarily due to the cultural hegemony of the English Language. This book provides a fascinating media history of recent visual technologies in Mexico, reminding us how media and genres spill over from one place to another. Tobin orchestrates a nuanced reflection on the complicated, pervading dispersal of globalized media. In an age where boundaries between science fiction, speculative fiction, fantasy, and other subcategories are contested, Tobin's new book proposes "specular fiction" (2). This designation points us in the right direction if we want to begin progressing our understanding of speculative cultural production. Tobin suggests a slight turn away from such hegemonic labels to root his definition at the nexus of literary and visual media–two spaces that, he contends, have grown increasingly intimate. Cyberpunk provides a useful nexus because, though realist texts feature ocular themes, a subgenre that can draw connections between older technologies and newer variations of "the e-image component" (12) is necessary. Tobin analyzes works from 1993 to 2014 to highlight just how turbulent the media landscape has been in recent decades.

Tobin is a scholar of Mexican culture on a larger scale, and his intervention into genre studies is doubly justified by his analytical roots in Mexico. It is a country where genre labels are more fluid, contrasting the market-driven genre labels of U.S. cultural production. While Tobin's case studies can mostly be identified as science fiction, his theorization opens up specular fictions–narrative forms that entwine language and screens–as works present across disciplines. Such theorization allows Tobin to dodge some prickly generic disputes about "science fiction" and the sweep of "speculative fiction." Rather, he contextualizes his intervention for literary and media studies more broadly by following the well-known work of Walter Ong and W.J.T. Mitchell, who

have "argued that all media are mixed media, meaning that no media [sic] is purely visual" (4). With this mixed approach, Tobin performs literary analysis that utilizes literature as case studies to theorize media. Tobin's key interventions contribute to SF scholarship, Mexico Studies scholarship, and scholarship that explores the growing camaraderie between literary and visual media studies. His focus on "specular fictions" does well to offer useful critiques for theorists of science fiction and cyberpunk. By building his definitions on the importance of a given visual technology for a literary work, though, he also theorizes something that can be identified and analyzed across disciplinary and generic boundaries

In Chapter 1, his introduction, Tobin provides a useful comparative reading of Mauricio-Jose Schwarz's "La pequeña guerra" ["The Little War"] (1984) and Francisco Amparán's "Ex machina" (1994). The former, an earlier text, figures television secondarily. The latter, a later text, is a narrative primarily driven by the presence of television. The latter is a specular fiction, while the former is not. Here we see a way in which specular fiction remains compatible with Science Fiction theory–Amparán's story uses television as the "novum," or the technological mechanism that shapes the narrative world (In his landmark essay "On the Poetics of the Science Fiction Genre," Darko Suvin adapted "novum" from Frankfurt School theorist Ernst Bloch). Tobin adapts the term "scopic regime" from Media Studies, but the scopic regimes in focus are usually generated by a novum. This categorization of specular fiction serves most usefully as a temporal map that places geographical pressure on Mexico and the landscape in which it is situated. The fiction that Tobin highlights contains myriad visual technologies, from the television to the more speculative reality-distorting glasses. While some are more rooted in fiction than others, Tobin can move from foundational observations on cinema and television to the numerous screens that have exploded in popularity in the public life of the 2020s. With this progression through time, it becomes increasingly clear that this book about Mexico is more broadly about how Mexico is connected to, and increasingly resembles other global scopic cultures.

Chapter 2 grounds the book on a safe but sharp analysis of gender in the work of Gerardo Porcayo. It is safe because Tobin leans on Laura Mulvey's now-classic analysis of the male gaze in cinema, which argues that the history of cinema has been dominantly constructed through a male-centric gaze. It is also safe in that readers who come to this book will be familiar with the prevalence of masculinist SF and Cyberpunk. The analysis allows Tobin to perform two key moves. First, he roots Porcayo as a foundational figure for Mexican Cyberpunk, a figure representative of the indelible influences of the US and the dominant masculinist foundations of the subgenre. Second, he establishes that Porcayo's book is not limited to how specific visual technologies represent/influence perception and subjectivity, but how the gaze, on a broader scale, is a visually encoded social phenomenon.

Chapter 3 transitions into work that zeroes in on specific scopic regimes. Its focus on television makes it generally the heart of the book. Despite the range of visual media at play here, television is the most longstanding form-giving technology. Porcayo writes towards the beginning of the growth of television as a scopic regime, while the book ends with reflections on the

proliferation of smartphones and computers which in the 2010s "still had not eclipsed television presence" (27). Television history also helps Tobin bring to light the "restructuring of the media industries within Mexico," a "higher proliferation of images," and the growth of the television market itself (27). These three areas open up analyses of "political legislation and privatization," the "expansion of foreign oligarchic media companies" and the evolutions of the Mexican economy (27). In one striking detail about the shift from public to private media, Tobin reflects on the "media imperialism" that took place as US-based programming took hold of the Mexican television-watching public (27). Focusing on Pepe Rojo's work, Tobin centralizes a theoretically informed writer through his story "Ruido gris" [Gray Noise] (1996) and the novel *Punto cero* [*Zero Point*] (2000). Two key strains arise here as Tobin further expands the net of globalism by juxtaposing an analysis of NAFTA and an analysis of the influence of European postmodernists Paul Virilio, Jean Baudrillard, and Slavoj Žižek on Rojo's work. Tobin suggests that Jacques Lacan's influence may be the most important to Rojo's work. He offers a Lacanian analysis to tie the television to the home. Here, the spectacular violence that becomes regular viewing numbs individual viewers to bodily destruction. The critique illustrates how screens become a part of Rojo's speculative literary form, as well as the political forms that emerge with the immediacy and pervasiveness of television news cycles.

Chapter 4, finally, is perhaps the most striking, at least insofar as the content of the case studies goes. It offers a comparative analysis of Eve Gil's novel *Virtus* (2008), and Guillermo Lavín's short story, "Él piensa que algo no encaja" [He thinks something doesn't fit] (2014), using Debord's *Society as a Spectacle* as a theoretical springboard. Debord's theory leads to a theorization of the twentieth century as "one which involves a hypermediated realm of megaspectacles and interactive spectacle" (40). The analysis centers on Gil's depiction of President Wagner, the center of a virtualized Mexican future. Wagner is a young, handsome politician who is carefully shaped and curated to appeal to the power of celebrity culture and telenovelas. Wagner is likened to the real-life President Enrique Peña Nieto, elected in 2012. Wagner's fictional, highly publicized celebrity marriage mirrors that of Peña Nieto, whose marriage may have been a ruse to appeal to public cravings to blur the lines between the telenovela and reality. Wagner dies and becomes a hologram controlled by a mysterious group of powerful people. While Gil's text relies on curated mass culture, Lavín's uses VR glasses that render the world better than it is, suggesting that not only are individuals prone to ideological conditioning, but often they actively desire it. The analysis builds out Debord's neo-Marxian critique to a critique of ideological conditioning as a spectrum. Subject formation proceeds under the pressure of dark media conglomerates, and through intimate individual engagement with the technology. This comparative analysis reflects on the relationships between mass culture and individual subjectivity. Perhaps most hauntingly, it meditates on Wizard of Oz-esque figures who work behind the veil to advertise, condition, and enforce power. Though the technologies of these stories are more speculative than those of the works discussed in the preceding chapters, they resonate with the familiarly fragmented and persuasive cultural dispersals of today's smartphones, social media apparatuses, and corrupt powers that often work across national boundaries to maintain docile populations.

These works are predominantly dystopian, and Tobin carefully relies on theorizations of dystopias as critically reflecting on the times in which they are imagined. His engagements with these dystopias generate compelling arguments for the magnitude of power that visual technologies have to shape national cultures and individual subjects. Tobin's scope is limited to a corpus that reflects on recent decades but leaves open the question of how specular fictions might be further explored. Following Nicholas Mirzoeff, he writes that specular fictions engage with visual technologies "defined as any form of apparatus designed either to be looked at or to enhance natural vision, from oil painting to television and the Internet" (6). Questions that might follow then: what happens when we stretch definitions of visual technology? Perhaps an apt question for cyberpunk specifically might be, can we identify specular fictions by the clothing worn in the texts? Can we identify specular fictions by how they represent plant and animal life? How do our formulations of specular fictions change when we bring more specifically semiotic theoretical lenses to them? If we are to bring specular fictions full circle by examining questions of genre, might we interrogate deeper history? Tobin carefully keeps the presents of the texts close to the chest to avoid vague proclamations about the future, which leaves these questions for other thinkers. Hopefully, they will be taken up by scholars working on SF, Mexico, and wider discourses of literary and media studies, all of whom should find useful insights in this book.

Josh Beckelhimer is a PhD Candidate in the English Department at the University of Southern California. He is a Visual Studies Images Out of Time Fellow and holds an MA from the University of Cincinnati. His work focuses on ecological cosmologies within speculative literary works by Zora Neale Hurston, Octavia Butler, Leslie Marmon Silko, and Rita Indiana. He focuses on the cosmological forms that literary writers use and interact with to reconceptualize colonial histories of the Americas, human relationships to the environment, and varying sciences and systems of ecological knowledge. He is particularly interested in writers who tap into expansive imaginative generic frames to go beyond basic understandings of material ecology.

The Kaiju Connection: Giant Monsters and Ourselves, by Jason Barr

Amber A. Logan

Jason Barr. *The Kaiju Connection: Giant Monsters and Ourselves.* McFarland, 2023. Paperback. 210 pg. $39.95. ISBN 9781476693514.

The Kaiju Connection is a short work focusing on the questions: what makes a kaiju a kaiju, and why are we, as humans, so intrigued by them? This isn't Barr's first foray into kaiju discourse, but this volume focuses more on recent kaiju films and the existential questions associated with the genre. With a refreshingly conversational (and sometimes humorous) tone, Barr isn't afraid to pull metaphorical punches, curse, or paraphrase Homer Simpson in his evaluation of kaiju films, ranging from the serious and philosophical to the campy. Barr even states that this book isn't an academic text in the strictest sense, but perhaps "more of an apologia for the continued study of the kaiju film" (3).

Barr suggests that society continues to be intrigued by kaiju films because the fascination with kaiju is an (at least tacitly) acceptable extension of a childhood fascination with dinosaurs. While not being particularly female-forward (few kaiju films, with the exception of *Colossal* [2016], have strong female protagonists—or, even, side characters), kaiju films do have strong masculine vibes and odd tie-ins with professional wrestling—which, admittedly, goes a long way to explaining the suspension of disbelief afforded some of the more comical and unconvincing rubber suits found in lower-budget kaiju films. Beyond gender dynamics, Barr argues that kaiju films can be legitimately studied in terms of political commentary (from the original 1954 *Godzilla*'s clear connections to post-war nuclear trauma to the 2016 *Shin Godzilla*, which can be read as a critique of the Japanese government's response to the Daichii Fukushima disaster) and social commentary (evidenced in the evolving sense of "the Other" found across kaiju film franchises). Barr also argues that the more recent trend for American film makers to downplay Godzilla's original nuclear origins has strong implications, arguing that they manipulate the story to give Americans a "pass" for the nuclear bombs dropped on Japanese soil during WW2 in order to make the story more palatable to their targeted American audience, thereby co-opting a character originally about a collective national trauma by the nation who caused the trauma. Recasting Godzilla as a 'force of nature' rather than a product of human violence and cruelty certainly reframes the narrative. However, Japanese filmmakers are not immune to the concept of spinning the popularity of Godzilla

in order simply to make a quick buck; Barr also delves into the trend of some Japanese film companies to turn Godzilla from a serious message about humanity's hubris into a kid-friendly "big monsters fighting" type of Saturday morning entertainment—the type of low-budget films that Barr bemoans as having watered down the reputability of the genre as a whole in the eyes of the general public.

Beyond Barr's arguments for why kaiju and the genre of kaiju films are worthy of study, one of the most interesting parts of this book is its continual probing of the boundaries of the kaiju film genre. Barr convincingly argues that determining what ISN'T a kaiju film can be just as enlightening as determining what IS. Can a giant ape be a kaiju? What about a giant human? When does a creature change from being merely an oversized animal, to being a monster, to being a full-blown kaiju? Where those lines are drawn can arguably say a great deal about our perceptions of what constitutes humanity, and what we can sympathize with and relate to. Barr argues that the most solidly-kaiju kaiju are ultimately giant monsters (usually with Japanese origins, or at least nods toward a Japanese origin) who hold up a mirror to humanity and teach us something about ourselves. Barr proposes four "types" of kaiju or kaiju-adjacent films (authentic kaiju films; knockoff kaiju films; big, familiar creature films; and human kaiju), but perhaps the use of "fuzzy logic" is best applied when determining whether a film is a "kaiju film" or not, allowing the judger to decide how close the film in question approaches the beating heart of the kaiju film exemplars

As Barr readily admits, it would be difficult to call The Kaiju Connection an academic tome, but it arguably has merit for scholarly research, particularly for those interested in the more philosophical, ethical (the costs of human life are often skimmed over in favor of watching two kaiju battle it out on the streets of major cities), and existential questions raised by the more 'serious' kaiju films. Casual fans of the kaiju film genre will find enlightening topics and much to enjoy (as well as much to skim over), but hardcore kaiju film junkies will delight in the depth into which Barr delves regarding specific recent films, characters, and even associated merchandise. Overall, The Kaiju Connection is a valuable addition to the kaiju film discourse

Dr. Amber A. Logan is a university professor, freelance editor, and author of speculative fiction. In addition to her degrees in Psychology, Liberal Arts, and International Relations, Amber holds a PhD in Creative Writing from Anglia Ruskin University in Cambridge, England. Her thesis "Men Who Lose Their Shadows: from Hans Christian Andersen to Haruki Murakami" examined the intersection of fairy tales and near-future speculative fiction, and her debut novel *The Secret Garden of Yanagi Inn* was published in November 2022

The Triumph of Babylon 5: The Science Fiction Classic and Its Long Twilight Struggles, by Baz Greenland

Bruce Lindsley Rockwood

Baz Greenland. *The Triumph of Babylon 5: The Science Fiction Classic and Its Long Twilight Struggles.* McFarland, 2024. Softcover. 250 pg. $49.95. ISBN 9781476692401; Ebook. $29.99. ISBN 9781476651446.
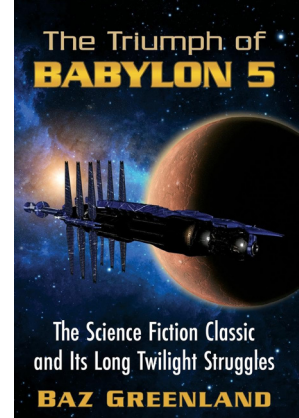
Baz Greenland is a podcaster and long-time fan of the television series *Babylon 5*, whose deep understanding of the show and its aborted spin-offs comes from the standpoint of a British viewer who heard of the show in his youth after its initial broadcast in the United States and who has watched and rewatched it ever since for over thirty years. He comments in his book, "The show's inception, the struggles during production, and the attempts to continue the *Babylon 5* story are almost as epic a tale as the fight against the Shadows and the battle to save Earth" (4). He has written widely and on-line about the series, https://www.threads.net/@greenlandbaz, interviewed surviving cast members, and has a podcast about it: https://podcasts.apple.com/us/podcast/a-dream-given-form-a-babylon-5-podcast/id1611981020. Now he has produced a book aimed at exploring the parallel stories of the show's narrative plot, and the attempts to revive and extend it.

He notes his early enthusiasm for the show

> *Babylon 5* stayed with me. I caught late night reruns on Channel 4, finally seeing what life was like under Commander Sinclair in season one. I bought all the seasons on VHS. On my A-Levels results day, I treated myself by popping into the video store and spending a whole $100.00 on the complete season three box set. . . . I introduced new friends to *Babylon 5*. I got the TV movies. I stuck through *Crusade*. (2)

His reaction was much like my son's, who bought an extra DVD set of the first season when it came out to share with friends at school, something I have seen duplicated since only with the single season of *Firefly*! (2002-2003)

The book has 26 chapters, starting with a discussion of "The Legacy of *Babylon 5*" in Chapter 1, followed by an overview of SF "Story Arcs" in Chapter 2. Greenland notes:

The Oxford English Dictionary defines legacy as 'a situation that exists now because of events, actions, etc. that took place in the past.' The story of *Babylon 5* as a TV show can certainly be viewed through the prism of that definition. The narrative structure of the show is built on the events of the past. The horrors of the last great Shadow War left scars on the Minbari and the Narn. The rise of Valen a thousand years ago shaped Minbari culture, most significantly the character of Delenn. The Vorlon manipulation of other races and the creation of telepaths saw the show revisiting the trauma of the past, most fundamentally in the show's final season. (6)

He argues that J. Michael Straczynski's creation of *Babylon 5* opened the door and set the standard for long-form story telling and multi-season story arcs that enabled subsequent television shows, from the reboot of *Battlestar Galactica* (2004-2009), to more recent iterations of *Star Trek*, such as *Discovery* (2017-2024) and *Picard* (2020-2023) (7-18).

Chapter 3 focuses on how Straczynski came to develop *Babylon 5*, making use of his comments on the rec.arts.sf.tv.babylon5.moderated message board back in 1995, when he emphasized the need to have a reasonable budget, treat SF seriously in story-telling, and make use of the kind of sagas he admired in the genre. "As a lifelong fan of grand science fiction sagas like *Foundation*, *Childhood's End*, *The Lord of the Rings* and *Dune*, he kept wondering: why hadn't someone done this for TV?" (19-20). Chapter 4 explores how cast changes and the collapse of the Prime Time Entertainment Network (PTEN) lead to revisions of the original five year story plan and his proposed follow-up series *Babylon Prime*. (26) See: https://en.wikipedia.org/wiki/Prime_Time_Entertainment_Network and https://www.themoviedb.org/network/211. The original combined ten year story arc would have been very different from the show as it was produced, perhaps more dark and less exciting: "The final version of the TV show certainly appears to be the more thrilling option of the two" (29).

Further chapters discuss the development of the series, the back and forth debate about the relationship between *Star Trek Deep Space Nine* (1993-1999) and *Babylon 5* (Chapter 6), and interesting interviews with cast members Peter Jurasik, Marshall Teague, and Patricia Tallman. Chapter 7, "Making 'The *Lord of the Rings in Space*' a Reality," discusses the financial and technological obstacles to making grand SF films, and the literary influences on Straczynski's story arc, including the poem "Ulysses" (1833; 1842) by Alfred, Lord Tennyson, as well as *Childhood's End* (1953), *Dune* (1965), and *The Lord of the Rings* (1954) (50-53). Chapter 9, "JMS's Character Trapdoors," shows how Straczynski planned character switches and exits to allow continuity despite unexpected challenges, while Chapter 10 explores his efforts at introducing diversity in race, religion, gender, and sexual relationships that were not always fully realized but significant for the era (74-76). Chapters 12 through 16 deal with each of the five seasons of *Babylon 5*, including comparisons of alternate viewing orders of Season 1 (97-98), Season 2 (109-110), and in subsequent seasons, as they relate to building the mythos of the show. Subsequent chapters explore the TNT Movies, the single season of *Crusade* (1999), and other attempts to extend the detailed universe created by JMS.

The book includes Chapter Notes, a Bibliography, and an Index. It makes extensive use of *The Lurker's Guide to Babylon 5*, available at http://www.midwinter.com/lurk/. Anyone familiar with (or new to) the series will value the detailed discussion of the making (and unmaking) of the original five-year story arc, Greenland's commentary on each of the five seasons, and discussion of the innovations made by Straczynski that set the template for much of 21st century SF production. Greenland explores attempts to extend or reboot the series, and his enthusiasm, commentary, and interviews with the cast make this a valuable resource for conducting further research on the series, which remains one of my favorites.

Bruce Lindsley Rockwood, Emeritus Professor of Legal Studies at Bloomsburg University, Pennsylvania, is a long-time member of SFRA, having served as Vice President (2005-2006), and regularly writes reviews for *SFRA Review* from his retirement home in Midcoast Maine. He has taught and published on law, literature, climate change and science fiction, and attends SFRA and WorldCon with his wife Susan when possible (most recently in Montreal, Spokane, and recent virtual sessions of the SFRA.

FICTION REVIEWS

Review of *Polostan*

Carl Abbott

Stephenson, Neal. *Polostan* William Morrow and Company, 2024.

In the summer of 2000, I happened upon the newly released paperback edition of Neal Stephenson's *Cryptonomicon*; fresh off qualifying exams, I was looking for a fun read, nothing too heavy, to slowly enjoy after the frenetic pace that gutting books requires. The marketing materials suggested *Cryptonomicon* would fit the bill, so I picked it up.

It changed the direction of my career. I roared through it in two or three days and knew that this novel would have to find a place in my dissertation alongside works by Thomas Pynchon and Ismael Reed, and I began picking up more of Stephenson's body of work, starting with *Snow Crash* and *The Diamond Age*. *Cryptonomicon* was nothing light, of course, and for those who've ventured into the similarly deep waters of The Baroque Cycle, *Polostan* will resonate along similar frequencies. It is a promising opening to the Bomb Light Cycle (a sequel has not yet been announced), and certainly worth seeking out. I came to like the novel more and more as it progressed, a good sign for a promised series.
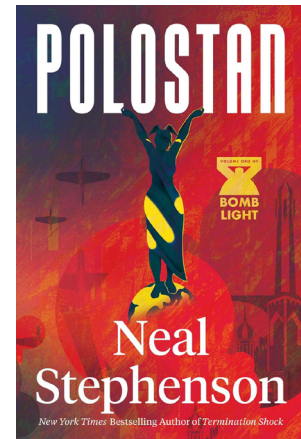
That said, *Polostan* does not stand quite as high as the works mentioned, but it is a welcome return to historical SF form from the Tom Clancy-esque thrillers Stephenson has been releasing of late (*Reamde*, *Fall*, *Termination Shock*, e.g.), with a bifurcated plot that jumps back and forth in time and place quite rapidly. However, it is a slow boil of a story, coming together piecemeal as protagonist Dawn Rae Bjornberg, known as Aurora in her father's Soviet Union, comes to find herself under the control of Lavrentiy Beria, head of Stalin's secret police

Dawn holds American and Soviet passports; born in the US but taken to Revolutionary Leningrad by her father, she returned to her mother in Wyoming as a girl and learned to ride horses there. A skilled polo player and ardent Communist, she then works for her father, observing American troop movements among the disaffected veterans of the Great War in Washington in the early 1930s, coming into contact with such young officers as George Patton, Dwight Eisenhower, and Douglas MacArthur (himself a character in *Cryptonomicon*). In Washington, she takes possession of a Thompson machine gun in a violin case, and she gains knowledge of a large cache of guns and ammunition being smuggled in from Chicago on the trains.

In Chicago and in Russia, she witnesses the dawning of the Nuclear Age as physicists attempt to release weather balloons to the upper atmosphere to observe cosmic rays and potentially unlock the structure of heavy nuclei, how stars emit x-rays and other forms of radiation, and what might be done to harness such powers. Aurora also bears witness to the human costs of such experiments. Where the next volumes of Bomb Light may go along these lines will be intriguing—much like his exploration of the creation of digital computers through the needs of cryptology in *Cryptonomicon*'s World War Two sections, Stephenson is laying the foundation for potentially fascinating steps towards Hiroshima and Nagasaki and the development of the Hydrogen Bomb in the US and the USSR in *Polostan*.

Still a teen but on the run from Federal Agents, Dawn makes her way to the Soviet Union, where her life changes quite suddenly. Unlike a nascent literary critic, her awakening does not happen in a bookstore, but in rather more torturous circumstances. Under Beria's direction, Aurora becomes "Svetlana" and then "Katya" as she works to report on foreign reporters for the OGPU.

Dawn's next steps are eagerly awaited—unlike such protagonists as YT and Nell in *Snow Crash* and *The Diamond Age*, respectively, she is not overtly sexualized in *Polostan* even as she takes a lover, and while she is clever and opportunistic, Dawn differs from Eliza, Duchess of Qwghlm in The Baroque Cycle, in that she is not driven to collect economic resources and political power—she needs to survive to the next moment.

Polostan is recommended as a slow-burning iteration of Stephenson's great powers as a storyteller. There are fewer prose pyrotechnics than in earlier novels here and it is not the hard science fiction of such recent works as *Seveneves*, but it is a compelling read.

Jonathan Lewis is Associate Professor of English at Troy University where he teaches composition, SF/F and American literature. His upcoming book, *Contemporary Science Fiction and The Many-Worlds Interpretation of Quantum Mechanics: Sacrifice and Narrative Coherence*, will be published by Bloomsbury Books.

Review of *Rose/House*

Sarah Nolan-Brueck

Martine, Arkady. *Rose/House.* Tor Publishing Group, 2023.

"A person can leave a place without going anywhere at all"—so says Rose House, the sentient home that provides the name and magnetic setting of Arkady Martine's recent novella (54). At 115 pages, *Rose/House* is as slim as a stick of dynamite, and nearly as deadly. Where Martine's Hugo Award-winning Teixcalaan series (2019-2021) takes place in a far-future, sprawling galactic empire, the world of *Rose/House* is much more intimate—taking place sometime in the next century, in the Mojave Desert community of China Lake. Named for its dried-up body of water, China Lake's remote, arid setting makes Rose House all the more enchanting—a house blooming out of the desert, full of lush greenery, a swimming pool, and clean energy, a beacon of technological possibility in a region where people are murdered for their water ration credits.
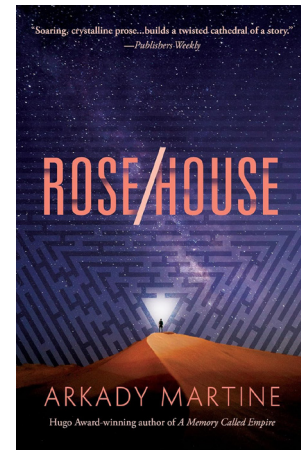
The narrative follows three main characters, Dr. Selene Gisil, Detective Maritza Smith, and Detective Oliver Torres, as they try to solve the ultimate locked-room mystery. Gisil is the protégé of Rose House's famous architect, Basit Deniau; she is also the only person who is allowed to enter Rose House to access his records, now that he has died. Given this common knowledge, Smith is shocked when Rose House makes a compulsory call to the China Lake precinct to report that there is a dead man on her premises—a dead man other than Deniau, whose body was turned into a diamond and put on display inside the home. Smith calls on Gisil to return to China Lake and help her gain access to the house. To enter, however, Smith must circumvent Rose House's programming. She must declare herself an entity rather than a person, China Lake precinct rather than Maritza. Despite Torres's protests and panic, Smith gives up her claim on individual personhood to meet the house on its terms, to be swallowed up by its walls and logic.

Martine's novella explores architecture as an inspiration for experimentation, digging into the implications of transforming a mundane domestic space into a super-advanced, one-of-a-kind technological display. Rose House is much more than a smart home imbued with sci-fi gadgets and voice command; referred to throughout as a "haunt," the house itself is sentient. It listens and speaks without any obvious source of audio input or output, and tiny nanobots teem in the space, ostensibly working to keep the house in prime condition. The house normally holds only one dead man, Basit Deniau, who has been turned into a diamond and displayed on a plinth. The border

between person and object here is wholly blurred. A house becomes a person; a man becomes a diamond; a woman becomes a precinct.

And yet, there is much we don't know about Rose House's origins and history. Beyond one short, ambiguous flash of memory from Dr. Gisil's point of view, in which she remembers someone diving into a pool, the story takes place entirely in the present moment, after the death of the architect. While the house—the "haunt"—is imbued with a disturbingly omnipresent consciousness, the theme of haunting extends to the power Basit Deniau still holds in death. The memories of his manipulation seep into Gisil's current reality. Damned to act as his archivist, Gisil's role as his famous protégé and beneficiary leaves her stranded in her own career, too overshadowed by a dead man to excel on her own merit. Groups of architects, artists, and politicians jockey for a claim on Deniau's property and legacy, waging ideological and legal battles to access, copy, or repatriate his intellectual and physical property. But Rose House, most of all, is possessed by her departed master. Once the site of lavish parties and admiring guests, Rose House has been emptied and made into a beautiful crypt. Her only job is to guard Deniau's restructured body and his records from prying eyes—quite literally. As it turns out, Smith is only probing for loopholes because the anonymous dead man did so before her; he attempted to copy Deniau's retinas, to trick Rose House into handing over her most intimate secret—her source code. In the end, however, our most intimate knowledge of the house comes from the surprising depth of her grief for her creator and for her past life. Though the house is smart enough to see through the imposter's trick, she allows herself to be taken in, to enjoy the possibility of her beloved's return, before killing the trickster in an act of vengeful, tragic rage. Rose House is human enough to indulge in delusional nostalgia.

With nods to Shirley Jackson's *The Haunting of Hill House*, which also focuses on a home that is "not sane," as Detective Torres states, *Rose/House* plays with the borders of what language can impart as both a tool of an artificial intelligence and a way of depicting highly advanced, nearly incomprehensible technology. In this way Martine's depiction of Rose House—its consciousness and its more indecipherable elements—as well as her flair for odd detail echoes the New Weirdness of Jeff Vandermeer and the worldbuilding sincerity of Annalee Newitz. If Martine excels in depicting the politics and potentials of Rose House's intellectual property, a piece we miss out on is the greater illustration of Rose House as a physical space. Though specific rooms are described—the entry hall, the garden room with a glass wall, the vault where Deniau's designs are stored—, much of the house is depicted only in passing glimpses, as Maritza sprints through the strange space. Nevertheless, Martine's *Rose/House* is an impressively rich microcosm of AI's growing potential and of our responsibility to understand it.

Sarah Nolan-Brueck is a PhD candidate at the University of Southern California, where she studies how science fiction authors critique medical legislation that restricts diverse gendered groups in the United States. Sarah was a 2024 Le Guin Feminist Science Fiction Fellow at the University of Oregon. She has been previously published in *ASAP/J, Utopian Studies, Orbit: A Journal of American Literature*, *Extrapolation*, and *Huffpost*.
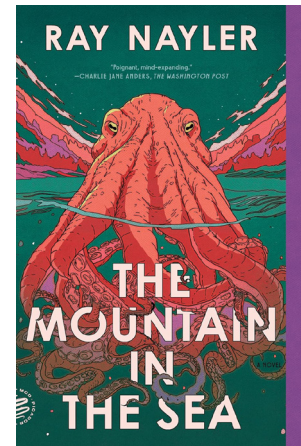
Review of *The Mountain in the Sea*

M.E. Boothby

Nayler, Ray. *The Mountain in the Sea.* Picador, 2023.

The Mountain in the Sea presents a powerful, risk-taking shift in what a novel can be. As some reviewers on *Goodreads* complain, it is more like a thought experiment than a story, constantly "philosophizing on sentience and semiotics." Personally, I was thrilled by this thought-provoking, profound element, but even recognizing my own bias, I do think that readers who are disparaging Nayler's novel (for not being the sci-fi thriller that the blurb on the back misleadingly implies that it is) are perhaps not the intended audience, or are missing the point. *The Mountain in the Sea* is a dazzling, wondrous book, but it is also a narrative built on academic research. It is a long-form question, not meant to provide the reader with any answers, only a dual sense of impending capitalist-and-climate-change dread and radical more-than-human hope. It is by turns objectively scientific and achingly beautiful, and its goal is just as much about introducing non-academic readers to phenomenological and semiotic theories as it is about finding awe in artificial and animal intelligence. Some readers, especially those who are already well-versed in the abilities of the octopus or the concept of the *Umwelt*, may dislike feeling preached to, and that is a fair reaction to this divisive book. Still, as scholars of SF, I believe it is a critically important text for us to mark, because it challenges what readers and publishers of SF are willing to explore and expand into. As a complex integration of philosophy and plot and a fragmented, multicharacter narrative that is consistently more interested in internal theorizing than external action, *The Mountain in the Sea* crafts a sort of academic-fiction treatise, what we might call research-creation without Nayler ever explicitly declaring it as such.

The Mountain in the Sea is set in a speculative near-future that is even further destroyed by capitalist greed than our present world; it is ravaged by climate change, and global corporations control the majority of the world's money and power. Natural resources are increasingly slim, and wars and trade deals have reshaped our borders and nationalities. It is a world that feels increasingly plausible in 2025, if not already partially here, and some of its brutal realities are what contribute to the sense of sickening dread and despair that the novel does not shy away from.

The main plot follows cephalopod expert Dr. Ha Nguyen to a remote island in the Pacific, part of the archipelago of Con Dao off the coast of Vietnam, owned by the multinational corporation DIANIMA, where she has been summoned to attempt communication with a newly discovered

species of octopus. Also on this island is Evrim, a prisoner in all but name and the world's first and only AI to pass the Turing Test. Evrim's robotic body resembles a genderless human adult. Additionally present is Altantsetseg, a cyborgian-hybridized ex-soldier of the Tibetan army who is assigned both to protect the island and its rare reef from poachers and to keep Ha and Evrim from leaving. Despite the political and financial machinations playing out behind the scenes, Ha and Evrim become immersed in their mission to establish communication with the Shapesinger, a female octopus whose species appears to have developed complex language and culture. The Shapesinger and her communicative abilities represent the core of the novel's wonder, as when Ha and Evrim observe her skin displaying "a syntax of shapes—a steady sequence of silhouettes…a song, drawn on this flesh in the sea…ever-shifting but bound together with rhythms within rhythms" (233-234). Their speculations later evolve to ask whether the octopuses see humans as sentient, or whether we are like distant, sky-dwelling gods, or demons. Ha imagines the octopus' terror upon realizing that these murderous creatures from above the surface are attempting to communicate: *"Fear: Will we drive it away from its hunting grounds, again? Murder its children, again? … Fear: How have the monsters learned to speak?"* (249 italics original). These continuous reframings of human and octopus conscious experience are Nayler's greatest strength, and the potential for more-than-human communication and collaboration in a future that we in 2025 still have time to change is what gives the novel the propulsive hope to parallel its despair.

Two side plots weave the wider storyworld together. Rustem, an elite Russian hacker, is hired by a rival corporation of DIANIMA's and tasked with trying to remotely hack into Evrim's artificial mind. Eiko, a young man kidnapped and sold into enslavement, is trapped aboard an AI operated fishing trawler and forced, alongside many others, to perform the physical labor that the computer cannot, while the trawler pillages protected waters. All three plot threads meditate meaningfully on what it will mean to be human—or, more specifically, to be deserving of the rights of personhood—in an increasingly capitalistic and technological future.

Between chapters, Nayler inserts quotations from two academic texts he has invented: protagonist Ha Nguyen's *How Oceans Think*, which is directly lifted from Eduardo Kohn's pivotal text *How Forests Think: Toward an Anthropology beyond the Human* (2013), and *Building Minds*, a fictional autobiography by Evrim's creator, the brilliant but coldly obsessive Dr. Arnkatla Mínervudóttir-Chan. These fictional nonfiction excerpts are where Nayler writes his most academic musings, a strategy that works well. As mentioned, his ideas are situated in an intersection between phenomenology, bio- and zoosemiotics, and recent shifts in human understandings of cephalopod biology. Bio- and zoosemiotics, broadly, are fields concerned with the reading of the natural world as signs with communicative potential, whose originators include Thomas A. Sebeok, Jesper Hoffmeyer, Gregory Bateson, and Jakob von Uexküll. Even the four parts of the novel are named after concepts in these fields: Qualia, Umwelt, Semiosphere, and Autopoiesis. Nayler explores these concepts not just as theory, but as applied to the human condition and our relations with the more-than-human world in peril around us. Consider the following excerpt:

> Communication is communion… Perhaps it is this thought that makes us so nervous about the idea of encountering cultures beyond the human. The thought that what it means to be human will shift… Or that we will finally have to take responsibility for our actions in this world. (301)

In one scene, Rustem also expounds philosopher Thomas Nagel's 1974 essay "What is it like to be a Bat?" The novel asks consciousness-related questions consistently, introducing readers to the Umwelt concept, which asserts that each species can only experience the world through their own unique sensory and perceptive abilities, therefore making it impossible for us to truly know what it is like to be a bat—or an octopus, for that matter. It would be beyond the scope of this review to explain and detail each theory that Nayler incorporates into his novel. I can only recommend reading it yourself and allowing yourself to be transformed by it. In conclusion, Nayler speaks quite aptly for *The Mountain in the Sea* through Ha's book excerpts, inhabiting both the fictional scientist and the SF author when he writes:

> I will be accused of many things by those who criticize this book… I will be accused of having created from nothing a vast, speculative archaeology of a possible future, in which we discover that while we are the only species of *Homo* there may be, in fact, another *sapiens*.

> I do not apologize. I want to help my readers imagine how we might speak across an almost unbridgeable gap of differences, and end forever the loneliness of our species—and our own loneliness. (447)

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MEDIA REVIEWS

Review of *Once Upon A Time In The Future: 2121*

Özgür Çalışkan

Once Upon A Time In The Future: 2121. Dir. Altın, Serpil. Serpil Altın Film. 2022.

Once Upon A Time In The Future: 2121 (2022), directed by Serpil Altın—regarded as the first woman science fiction director in Turkey—presents a poignant exploration of a future Earth devastated by environmental decay and extreme scarcity. Against the backdrop of an uninhabitable surface, survivors reside in underground colonies ruled by the dystopian "Young Administration," a government implementing "The Scarcity Laws" that demand the removal of older generations to ensure resources for the young. Through the lives of a family faced with an impending birth, Altın's film probes complex questions around generational sacrifice, ethical choices, and survival under eco-authoritarianism. This ambitious Turkish science fiction film balances thematic weight with visual sophistication, marking a pivotal moment for both Turkish cinema and sustainable filmmaking in the science fiction genre.

The story centers on Zeynep (Selen Öztürk) and her husband Onur (Çağdaş Onur Öztürk), who live in one of these underground colonies with their young daughter (Sukeyna Kılıç) and Onur's elderly mother (Ayşenil Şamlıoğlu). Zeynep is pregnant with their second child, a development that brings both joy and tension, as the government's population control measures become more invasive and threatening. The family's young daughter adds another layer to their struggle, embodying innocence and hope amid a repressive environment, and forming a strong bond with her grandmother despite the regime's harsh policies

As Zeynep's pregnancy progresses, the family is forced to confront the brutal laws that threaten the grandmother's life, torn between obedience to the regime and their commitment to one another. The young girl's presence intensifies the family's determination to preserve their unity, even as they weigh the risks of protecting their elderly matriarch in a world that has sacrificed empathy for survival. Together, they must navigate a series of moral and existential choices, challenging the regime's authority in their bid to protect each other

Serpil Altın explains her motivations behind *2121*, calling it a "documentary of the future" that reflects her mounting concerns over humanity's environmental impact. Inspired by questions from her daughter about the planet's future, Altın wrote the script alongside Korhan Uğur during the pandemic, using the atmosphere of that period to shape the film's narrative. Altın

discusses her motivation for creating *2121*, focusing on climate change concerns and her desire to explore what the world might look like 100 years from now. As Turkey's first "green film," it reflects Altın's commitment to eco-friendly practices on set, such as minimizing waste and using sustainable materials, recycled materials, digital scripts, and energy-efficient lighting to minimize environmental impact. Altın also addresses the film's themes of generational power dynamics and the hypothetical scenario of young people ruling over older generations. Her commitment aligns with industry trends where environmentalism influences both the film's message and its production methods, showcasing how cinema can promote sustainability in practice as well as theme.

One of the film's most unique features is its focus on generational sacrifice, an idea that is uncommon even within dystopian sci-fi. This adds a provocative ethical layer, inviting comparisons to Kazuo Ishiguro's *Never Let Me Go* (2005), where characters' lives are valued solely for their utility. By requiring that older generations sacrifice their lives for the younger, Altın critiques not only environmental neglect but also the tendency to devalue past generations' wisdom, positioning her narrative as a reflection on the costs of generational inequality. The family's decision to bring new life into a world that prohibits it represents a hopeful defiance, asserting a belief in resilience and humanity's will to persist.

In *2121*, environmental collapse and authoritarian control echo themes found in *Logan's Run* (Michael Anderson, 1976) and *THX 1138* (George Lucas, 1971). In *Logan's Run*, citizens are sacrificed at age 30 to maintain balance; both it and *2121* explore resistance against population control, however, *2121* emphasizes the moral dilemmas of a family's choice to protect their elderly, underscoring intergenerational bonds. Similarly, *THX 1138* portrays a sterile, authoritarian society suppressing individual emotions, and *2121* shows a government that places control over compassion, threatening family unity. Together, these films critique dehumanizing societies prioritizing order and resource management over human connection, but *2121* uniquely explores the resilience of family loyalty and ethical decision-making in a world where survival clashes with empathy.

The film's choice to center on a family facing generational conflict under authoritarian policies places it in the lineage of dystopian stories like *Children of Men* (Alfonso Cuarón, 2006) and the *Hunger Games* (2012-2015) film series, yet with the intimacy and moral complexity of Turkish storytelling. While the *Mad Max* (1979-2024) franchise and Snowpiercer (Bong Joon Ho, 2013) portray futuristic societies with intense action sequences to reflect chaos and scarcity, 2121 conveys urgency and tension through subtle, measured pacing and human connection. This juxtaposition between global sci-fi conventions and Turkish sociopolitical motifs adds a fresh dimension to the genre. Altın's approach is introspective and intimate, framing the conflict around human values and familial bonds, allowing the film to resonate emotionally while exploring grand ecological themes.

For Turkish cinema, this film is a milestone, demonstrating how local filmmakers can address global issues through culturally resonant narratives. *2121* has garnered multiple awards and screenings at international film festivals, furthering its impact globally. Additionally, the film has attracted the interest of an American distributor, signaling its resonance beyond Turkish borders and contributing to the international conversation on climate change and human resilience. In doing so, *2121* not only carves a path for Turkish eco-science fiction but also calls on viewers to reconsider their relationship with nature, urging us to act before today's hypothetical dystopias become tomorrow's realities. *2121* takes an activist stance, critiquing contemporary society's detachment from nature and reliance on unsustainable consumption. Altın's willingness to confront these issues brings Turkish cinema into a more active role in the global eco-cinema movement. *2121* doesn't shy away from tough questions, but instead cloaks them in the ironic echo of "Happy Lives"—a haunting slogan that serves as both warning and lament for a future we can still change.

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Review of *Agatha All Along*

Jeremy Brett

Schaeffer, Jac, creator. *Agatha All Along*, Marvel Studios, 2024.

At the heart of *Agatha All Along* (and its 2021 prequel *WandaVision*) lies the fundamental truth that the worlds we construct for ourselves are often the ones that help us manage, or indeed survive the most unbearable situations. These psychological constructions allow us spaces in which we confront our fears and our traumas, develop and play out scenarios for overcoming the myriad stresses that weigh heavy on us—our guilt, our grief, our anger—and sometimes create fantasy lives marked by denial and avoidance. These alternate realities can be seductive beyond the telling of it, allowing occupation of a happy, hopeful imaginative space; at the same time, though, they can hinder emotional growth and our acceptance of, among other things, the ultimate experience that is death. The process is natural enough in the real world, but these fantasies take on monstrous and destructive new significance when fueled by magical abilities that transform the psychological interior into the physical exterior. In *WandaVision* we watched the dehumanizing consequences of this transmutation when out of bottomless grief and anger Wanda Maximoff/Scarlet Witch (Elizabeth Olsen) warped an entire town into a bubble of domestic sitcom-shaped fairyland in which she could live a life with her (non-deceased) husband Vision (Paul Bettany) and the two sons she created from nothing. In the process, she enslaved the innocent people of Westview, New Jersey, by puppeting them into characters for Wanda's new life. The series was an extended meditation on the damage that grief and unexamined psychological suffering can render on both trauma's original victim and those around her. And among the lessons that *WandaVision* offered was the time-honored warning about the corruptive nature of great power, especially when power begins to perceive and use people as mere tools.

Agatha All Along continues along the road that its predecessor series first laid down, this time centering on WandaVision's secondary antagonist, legendary witch Agatha Harkness (Kathryn Hahn), and her own struggles against the tragedies of her past. At series opening, Agatha is still in Westview, living out the fading ramifications of Wanda's now-distorted spell that imprisoned Agatha in a false past and identity—she believes herself a hard-nosed cop in a small-town police procedural. When a mysterious red-haired woman turns up dead and snarky FBI agent Rio Vidal (Aubrey Plaza) arrives on the scene dropping enigmatic hints about the truth of Agatha's situation (early on she asks Agatha, "Is this really how you see yourself?" and later, "Do you remember why you hate me?"), Agatha's constructed world begins to crack. The appearance of a young man (Joe

Locke) asking questions about Agatha and chanting in Latin becomes the catalyst for the walls to finally collapse and Agatha to reassert her true identity in the real Westview (albeit now without her Wanda-removed witching powers). Now back in control of her faculties, Agatha discovers at once that Rio is a sister witch (and former lover) come for revenge against her, that she is being pursued by the children of the Salem witches Agatha murdered in 1693, and that the young man (whom she names "Teen") has his own agenda requiring Agatha's assistance. Teen seeks the legendary Witches' Road, a magical pathway that promises the fulfilment of one's deepest desires to whomever can survive the Road's various trials. Both Agatha and Teen are in search of power, something Teen senses he had but is now missing and something that Agatha knows she once wielded. The two bring together a coven, each member marked by a desire for liberation from their own traumatic pasts: Divination Witch Lilia Calderu (Patti LuPone), Potions Witch Jen Kale (Sasheer Zamata), and Protector Witch Alice Wu-Gulliver (Ali Ahn), with Rio herself eventually joining as the coven's Green Witch. In addition, Agatha dragoons her Westview neighbor and fellow victim of Wanda's magic Sharon Davis (Debra Jo Rupp) along for the perilous journey as the original Green Witch, an early sign of Agatha's willingness to pitilessly use other people for her own selfish ends. The Road is conjured (via a haunting ballad which recurs throughout the series), and the trials begin.

Much of the series centers on the inability to control the chaos that imbues the world, and a concomitant desire for agency. Just as Wanda—scarred not only by Vision's death but by those deaths she accidentally caused during her tenure as an Avenger—temporarily wrested the order of time and space into an emotionally satisfying frame, so Agatha throughout the series continually struggles for control, or at least be seen to have the semblance of control. She frequently and expertly deploys sarcastic confidence as a defense mechanism when her agency comes into question, even during her own Road-caused trial as she dares to taunt the spirits that come to punish her for her transgressions. Agatha is a figure determined to shape her own destiny—she accomplished this (gaining a noxious reputation among her sister witches) by serially murdering her covens and stealing their power. These killings were accomplished through Agatha's careful, elaborate construction of a psychologically seductive narrative. In short, we learn Agatha invented the concept of the Witches' Road, its generative ballad, its rituals and trials, and its possibilities for revelation and recovery—all framed as an ancient mythos to attract desirous witches into her trap. Over time her invention assumes an imaginative life of its own and becomes a fundamental part of witch lore despite its objective nonexistence—the emotional and psychological significance of story and its value as a mechanism of human control are key facets of the series (as they were in *WandaVision*).

The power of narrative formation reveals itself with the existence of the Road; Agatha is as shocked as the rest of the coven, whom she planned to murder for their magic, to see her fictional creation appear from nothing as the ballad is sung (though she covers her surprise as part of her elaborate façade of omniscience). A competing story has suddenly emerged to force Agatha's own into reality, as "Teen" turns out to be Wanda's conjured son Billy, whose spirit entered the body of

a recently dead teenager. Billy struggles throughout the series with his own identity, being unsure who he really is; that identity crisis fuels the recognition of the vast power of creation he inherited from his mother. Seduced by the idea of the Road, he unconsciously wills it into existence and sets the coven upon the path but within this larger storyworld there emerges the potential for individual autonomy. We see Lilia, Jen, and Alice face down their own past regrets and fears: for Lilia, the trauma of the death of her coven and loved ones; for Jen, the binding that separated her from her magic; and for Alice, the generational curse that destroyed her mother. In the process, each witch gains a certain measure of liberation—unlike the toxic, dehumanizing stories of Wanda and Agatha, in which people are merely characters to be cast or instruments to be used, Billy's more empathic narrative allows for agency and emotional progress. For example, at one point, an angry Billy protests to Agatha that coven members should look out for one another and that "people can't be replaced." Agatha replies characteristically and drily, "Can't they?"

The root of Agatha's nonchalance about others and ease of taking life, however, lies, as did Wanda's actions, in deeply buried personal tragedy. Flashbacks show how in the 1750s Agatha had a son, Nicholas (Abel Lysenko), with whose six years of life she bargained for with Death (revealed to be Rio's true identity). At Nicholas' death, he had begun to work on Agatha's conscience, proposing another way to live beside preying on other witches. A traumatized Agatha then develops the mythology of the Road as a psychological defense for her toxic grief, with tragic results. However, Agatha's exposure to Billy's capability for compassion and empathy, as well as her fatal embrace by Rio and subsequent reemergence as a ghost, marks a potential change in Agatha's behavior and the ways in which she chooses to see the world. *Agatha All Along* proposes that the true power of narrative construction lies in its malleability and the many ways that stories and their narrators may exchange toxicity and trauma for emotional and personal renewal. It is no coincidence that the series centers on witches—a class of people marked by traditions of undergoing harsh injury, suffering, misogyny, and persecution—hoping to inject into this troubled historical legacy the potential for hope, escape, and recognition

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